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THE OCCURRENCE OF SUPERFETATION *

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From time to time reports of alleged instances of human superfetation appear in current medical literature. Reports of similar instances in other mammals occur also, although more rarely, in the nonmedical literature. As recent instances of the former may be cited the cases reported by Logan[1] and Gustetter.[2] Of instances of the latter may be mentioned the cases of King,[3] Sumner[4] and Harman.[5] The latter group of cases were found in the rat, the mouse, the cat and the cow, respectively.

Fig. 1.—Superfetus from the cat, after Harman.

Fig. 2.—Normal cat fetus, approximately 10 mm. long when fresh.

Fig. 3.—Macerated, distorted, normal cat fetus, after Kunz.

Without accepting the alleged cases in mammals with bicornate uteri as unequivocal, it is easy to see that aside from ectopic implantations, the conditions under which superfetation necessarily would have to occur in the human uterus may be totally different from those that may obtain in bicornate uteri. Since the usual intermenstrual period in women is twenty-eight days, it would also seem, as often asserted, that the older of two fetuses in a case of human superfetation certainly would occlude the uterine cavity rather effectively, and alone make fertilization of any ovum, liberated at a subsequent ovulation, difficult. It would seem to do this entirely aside from the possible effect of the cervical mucous plug so frequently referred to.

These things are true especially in such instances as that of Gustetter's, in which the time interval between the ages of two fetuses is estimated to have been as great as sixty-five days. Moreover, it would seem that the development of the first fetus and that of the corpus luteum in such a case as this would have inhibited the occurrence of subsequent ovulations. An obstacle to the implantation might also be found in the condition of the decidua, even if later ovulation actually occurred. Since Loeb[6] found that in the pregnant guinea-pig the endometrium cannot be stimulated to form a new decidua, it is evident that the fertilized ovum might encounter insuperable difficulties if similar conditions obtained in the human being. However, if a young blastocyst really can become implanted on the bare surface of an ovary, or on the peritoneum, even, then it may well be doubted whether a new decidual reaction is essential for implantation of the ovum in the human being. Furthermore, when implantation in the graafian follicle occurs, there probably is no decidual reaction, at least nothing comparable to what occurs in the uterus, although I presume that a corpus luteum might possibly act vicariously to some extent. However, there are other obstacles, such as those mentioned above, and the possible occlusion of the uterine tubal orifices in consequence of hyperplasia of the musculature.

Although it is being established that ovulation and menstruation apparently are not contemporaneous phenomena, succeeding ovulations nevertheless probably are periodic and separated by a considerable interval of time from each other. Such a conclusion seems to be fully warranted, although it is, of course, well known that ovulation may occur without menstruation in normal nonpregnant women. This, however, does not establish that ovulation occurs during pregnancy also. According to Fraenkel[7] and Miller,[8] ovulation normally precedes menstruation by about nine days. Cosentino,[9] and also a few others, have reported cases of ovulation during pregnancy in women, but we unfortunately know little as to the exact conditions which obtained, so that the entire matter remains as yet rather undecided.

Franco,[10] while reporting a case of spurious superfetation, gave a long list of Italian writers who were

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1. Logan, J. C.: A Case of Superfetation, J. M. A. Georgia, **7**, 1917.
2. Gustetter, A. L.: Abortion Due to Superfetation, J. A. M. A. **70**: 20 (Jan. 5) 1918.
3. King, Helen D.: Some Anomalies in Gestation of the Albino Rat (Mus Norvegicus Albinus), Biol. Bull. **24**, 1913.
4. Sumner, F. B.: Notes on Superfetation and Deferred Fertilization Among Mice, Biol. Bull. **30**, 1916.
5. Harman, Mary T.: A Case of Superfetation in the Cat, Anat. Rec. **13**, 1917; A Probable Case of Superfetation in the Cow, ibid., **14**, 1918.
6. Loeb, L.: The Influence of Pregnancy on the Cyclic Changes in the Uterus, Proc. Am. Physiol. Soc. **25**, 1912-1913.
7. Fraenkel, L.: Neue Experimente zur Function des Corpus luteum, Arch. f. Gynäk. **91**, 1910.
8. Miller, J. W.: Die Rückbildung des Corpus luteum, Arch. f. Gynäk. **91**, 1910.
9. Cosentino: Ovulation während der Schwangerschaft, Zentralbl. f. Gynäk. **21**, 1897.
10. Franco, T. E.: Ueber vorgetäuschte Superfoetation, Arch. f. Gynäk. **91**, 1910.

said to believe in the occurrence of superfetation. Unfortunately, this literature at present is largely inaccessible to me in the original, and such as is accessible remains unconvincing as all of it apparently was to Cuzzi, who is reported by Franco as regarding superfetation only as a theoretical possibility. Nor does there seem to be good evidence that ovulation occurs during pregnancy in other higher mammals. The only case cited is the questionable one in a cat reported by Christopher.[11] At present it has not even been established that superfetation occurs in the rare cases of double ovarian, or of combined ovarian and uterine pregnancies, although these cases furnish far more favorable conditions. Did the alleged occurrence of superfetation not involve a series of assumptions, each one of which remains unproved, belief in it would seem easier. Consequently, in view of all these things, it would seem that the concluson of Gustetter that superfetation is "a frequent though often overlooked cause" of abortion in women is rather venturesome.

The possibility of superfecundation, however, is not necessarily excluded by these considerations, for ova from the same ovulation still might be fertilized at somewhat different periods by some spermatozoa from the same or from subsequent coituses. But even while theoretically possible, it is evident that the relatively limited period of vitality of the unfertilized ovum, as contrasted with the duration of pregnancy, would make it extremely difficult, if not impossible, to recognize such cases. This would be true even if they occurred in the earlier stages of development, for normal growth differences are too great when contrasted with the

Fig. 4.—A case of pseudosuperfetation, No. 587, from the Mall Embryological Collection; × 2. All fetuses shown in Figures 4 to 12 are twin, as indicated by the numbering.

greatest differences that could possibly exist under these circumstances. This would seem to be true even if we grant that the spermatozoa have a somewhat more tenacious life than ova. In all instances in which the discrepancy of size or development between two fetuses is such as to suggest that one of them arose from an ovulation so far removed from the other as to produce unusual differences in size in the later months of prenatal development, the assumption of independent action of the ovaries, considered by

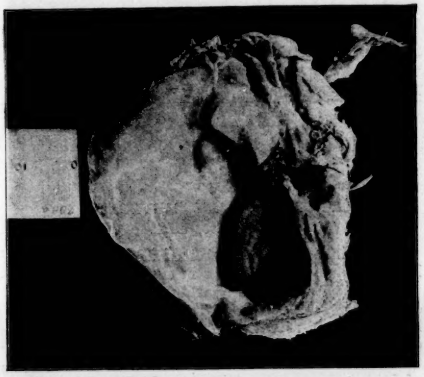

Fig. 5.—Pseudosuperfetus 788 *a* from the Mall Embryological Collection; × 1.

King in the case of the rat, would not avoid the foregoing difficulties. Nor could the occurrence of deferred fertilization, which is advanced by Sumner as an explanation for the occurrence of supernumerary broods in mice, be used as an explanation in human cases, for the period of vitality of both the ovum and the spermatozoon would seem to be entirely too short to become responsible for marked developmental differences.

Sumner found supernumerary litters to occur in 3 per cent. of 250 broods in young mice. Such litters were particularly frequent in young deer mice. The frequency of supernumerary broods would seem to vary greatly in closely allied mammals, however, for King observed only two cases, and these she regarded only as "seemingly" instances of superfetation among 700 normal broods in rats. This is an incidence of only 0.28, or a frequency only one-eleventh as great as that found by Sumner in mice. Sumner also stated that more than 80 per cent. of the supernumerary broods survived nearly or quite nearly to maturity, and King added that all of those broods in rats were raised to maturity and that some were used for breeding purposes later.

Although both King and Sumner regarded the occurrence of superfetation with considerable reserve, neither seems to have considered the possibility of delayed parturition in one horn of the uterus as worthy of consideration in connection with supernumerary broods between which the time interval was short. Whenever this interval was relatively long as contrasted with the gestation period, such a suggestion is untenable, to be sure, unless corresponding developmental differences were present. It might be helpful as well as interesting to have a careful gross and microscopic examination of the broods concerned in order to contrast the respective states of development.

11. Christopher, W. S.: Ovulation During Pregnancy, Am. J. Obst. **19**, 1886.

Since Fraenkel[7] found that some rabbits copulate while pregnant, it would be of especial interest to know if supernumerary broods are particularly common in such rabbits and whether supernumerary broods can be produced in mice should comparable conditions obtain. A particularly interesting question would seem to be raised by the occurrence of such cases as reported by Guerra[12] in which a second implantation is said to have occurred while a dead fetus still was retained in utero. Under these circumstances the smaller, younger fetus should always be best preserved. Although ovulation and perhaps also menstruation could occur under such circumstances in view of the well known regeneration of the endometrium, possible under these circumstances, one scarcely can regard such a sequence of events as established, at present. However, Franco[10] stated that there is no lack of cases in which a second pregnancy occurred under such circumstances.

Sumner quite rightly called attention to the fact that in the great majority of cases of superfetation recorded in man, one or both fetuses were macerated before born, and King concluded that "many cases that have been reported as due to superfetation unquestionably are instances of superfecundation or of blighted ova." Nevertheless, King regarded the case in a sheep reported by Arrowsmith[13] as probably genuine, and added that "although Christopher found that ovulation might occur during pregnancy in the cat, superfetation is not known to occur in this animal." However, Jepson, in 1883, reported such a case, and Harman[5] another. Neither report, however, would seem to bear critical scrutiny, although both are quite as trustworthy as other reports of alleged superfetation. In the case of Harman it would seem more

Fig. 6.—Pseudosuperfetus 788 *b* from the Mall Embryological Collection; the small nodule in the shaded area opposite the scale is the fetus; × 1.

probable that intra-uterine death of one fetus with survival of the other was responsible for the interpretation. It should be recalled that such instances are relatively common in the rat, guinea-pig, rabbit, ferret, marmot, the pig, and in some other mammals. These phenomena have been discussed by Strahl and Henneberg,[14] Henneberg, in 1903, Fraenkel,[15] Koebner,[16] Huber, [17] Mall[18] and Meyer.[19]

As is evident from Figure 1, in which the so-called younger superfetus, reported by Harman in a cat, is contrasted with the normal cat fetus (Fig. 2) of approximately the same length, the latter has a totally different form. The same thing is evident also,

Fig. 7.—Similar specimen, No. 1840 *a*; × 1.7; only slight maceration is present.

although to a lesser degree, on comparing the illustration accompanying Harman's article with one from Kunz,[20] shown in Figure 3. Since the latter, the larger of two macerated apparent superfetuses, in the report of Kunz, was deformed by retention, it may have measured a little more or less—probably more—than 10 mm. at the time of its death. However, even were it a trifle older than the fetus in Figure 2, as its form would seem to suggest, the difference is slight and may be ignored for purposes of comparison. Kunz spoke of the larger fetus shown in Figure 3 as entirely normal, which it apparently was, for the deviations from the normal form (Fig. 2), which the illustration so clearly shows, undoubtedly are due to postmortem, antepartum changes so common in human abortuses. Kunz's conclusion that all three fetuses in his case in the cat resulted from ova which were fertilized approximately at the same time heartily commends itself. Kunz further concluded that these specimens furnish no evidence for the occurrence of superfetation, in spite of the fact that two smaller macerated distorted fetuses, which were only 9 and 10 mm. long, accompanied a nearly full-term fetus.

Harman[5] also reported a case in the cow which, however, she regarded merely as one of "probable superfetation." Unfortunately this report rests very largely on the statement of a veterinarian, who made no further examination of the specimen. Hence it

12. Guerra: Un caso di superfetazione, L'arte ostetrica **15,** 1909.
13. Arrowsmith, R.: Superfetation (?) in the Sheep, London M. Gaz. **14,** 1834.
14. Strahl, H., and Henneberg, B.: Ueber Rückbildungserscheinungen am gravid.n Säugetieruterus, Anat. Anz. **20, 21,** 1902.
15. Fraenkel, L.: Die Function des Corpus luteum, Arch. f. Gynäk. **68,** 1903.
16. Koebner: Knochenresorption bei intra-uterinem Eischwund, Arch. f. Gynäk. **91,** 1910.
17. Huber, G. C.: 1915 The Development of the Albino Rat Mus Norvegicus Albinus, II, Abnormal Ova; End of the First to the End of the Ninth Day, Wistar Institute of Anatomy and Biology, Philadelphia.
18. Mall, F. P.: On the Fate of the Embryo in Tubal Pregnancy, Contributions to Embryology, Vol. I, No. 1, Washington, D. C., 1915.
19. Meyer, A. W.: Intra-Uterine Absorption of Ova, Anat. Rec. **12,** 1917.
20. Kunz, Albert: A Note on Superfetation, Interstate M. J. **23,** 1916.

would seem that we have no unequivocal evidence regarding the occurrence of superfetation even in mammals other than man. Moreover, as far as man is concerned, the large amount of literature on the subject furnishes no cases more convincing than that of Calderini.[21] Most of them easily can be recognized,

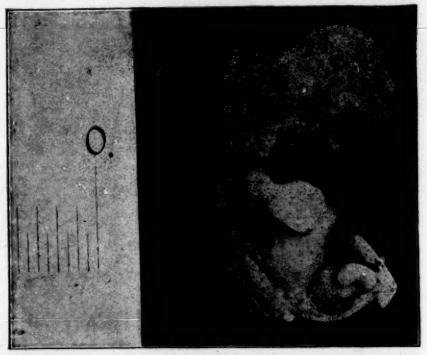

Fig. 8.—Pseudosuperfetus 1840 *b* from the Mall Embryological Collection, × 4; the maceration is very evident.

from the reports alone, as probable instances of twin pregnancy, in which one fetus died and then was retained until the birth of the other. Confusion is due largely to the fact that dead fetuses often are retained for a considerable period without showing very evident changes in form or gross structure. This seems to be due, in part at least, to retardation in the lytic processes in embryonic as compared with adult tissues, a phenomenon which has been referred to the slow postmortem development of acidity in embryonic tissues.

Since external form mainly is relied on as a criterion by the general practitioner, it is easy to see how misinterpretation of the facts arises, and it is significant that it is only the specialist who has come to doubt that supefetation ever occurs in human kind. This assumes, however, that by superfetation is meant the partly simultaneous intra-uterine development of two or more fetuses derived from ova liberated by independent ovulations separated from each other by a considerable period of time; or, in brief, the superposition of one pregnancy on another.

INSTANCES OF TWIN PREGNANCY

Since most reports on superfetation concern fetuses in the later months of pregnancy, it occurred to me that a representation of certain instances of twin pregnancy from the earlier months of pregnancy might be of special interest because such specimens could more easily and rightly be taken for examples of true superfetation. In the cases under consideration, one fetus evidently died some time before the abortion of both, a circumstance that resulted in considerable differences in age and form between the two. An examination of the accompanying cases will make it clear that all the instances here reported easily could be included among the alleged instances of superfetation found in the literature without doing the least violence to that literature. More than that, the instances here reported would form fine examples among such cases.

The youngest specimen contained in the Mall collection which came to my attention, and which might be regarded as one of superfetation, is No. 587, donated by Dr. F. A. Conradi of Baltimore. The cavity of the larger chorionic vesicle in the fresh specimen measured 32 by 23 by 23 mm., and that of the smaller about 6 by 6 by 9 mm. The latter was empty but the former contained a cylindric embryo 7 mm. long which Mall found greatly dissociated with a practically solid brain and only a remnant of the intestine. The amnion was present, and as shown in Figure 4, both vesicles formed a single mass which was covered by infiltrated decidua. That these chorionic vesicles both once contained an embryo, no embryologist will doubt. It is evident also that both were retained for some time after life and growth had ceased. The gross and histologic appearance of the entire specimen alone is sufficient proof of this. Although the smaller chorionic vesicle was incorporated in the margin of the larger, its death did not lead to its abortion or to that of the surviving twin. Yet the smaller of these twins undoubtedly died a considerable period before the larger. This is indicated also by an examination of the specimens and by the presence of decidua between the villi belonging to the respective vesicles at a point where they come in closest contact. An examination of this area shows that the ovum giving rise to the smaller conceptus was embedded independently, although undoubtedly also contemporaneously with the larger. Hence this specimen cannot be rightly regarded as one of superfetation.

The next specimens of twin pregnancy which might be regarded as a case of superfetation are Nos. 788 *a* and *b*, donated to the Mall collection by my friend, Dr. Anfin Egdahl. These twin chorionic vesicles, which

Fig. 9.—Everted chorionic vesicle of Fetus 1840 *a* below, and incised vesicle of 1840 *b* above, both forming a single mass.

were almost of the same size, measured 60 by 45 by 40 and 60 by 55 by 40 mm., respectively. Although of approximately the same size, the former contained a stunted embryo 17 mm. long, but the latter a nodular one only 3 mm. long. The differences in size and in the character of the two embryos are so marked that they prompted the late Professor Mall to make special inquiry of Dr. Egdahl as to whether these chorionic

21. Calderini, G.: Ueber einen Fall von Superfötation, Gynäk. Rundschau **3**, 1909.

vesicles really were obtained from the same patient, as reported. This inquiry Dr. Egdahl was able to answer promptly and positively in the affirmative. Here we are again dealing with a case of twin pregnancy in spite of the fact that the size of the embryos might seem to indicate that we really have a case of superfetation under consideration. But that the case is not such is shown also by the fact that the chorionic vesicles practically are of the same size. The smaller abortus with a partially inverted chorionic vesicle containing the better preserved of the twins is shown in Figure 5. Figure 6 shows the appearance of the larger abortus, which contained the smaller nodular embryo only 3 mm. long. The latter is seen at a midpoint near the upper third of the illustration. Both illustrations are practically of natural size. The larger fetus, the external form of which was fairly preserved, had an approximate age of about 48 days, as estimated by the Streeter[22] curve. Mall noted that the organs could all be outlined, but that they were dissociated and that the mandibular region had fused with the skin of the thorax. The small nodule, which represents the only remnant of the embryo belonging to the larger chorionic vesicle, contains a large cavity with thick, fibrous walls. Nothing but epidermis and a remnant of the nervous system could be recognized.

Fig. 10.—The same specimen as in Figure 9, showing the opposite side with the smaller fetus in loco.

A far more convincing instance of apparent superfetation was found in a specimen of twins donated by my classmate, Dr. Jane Ross of New York. The fetuses, Nos. 1840 *a* and *b*, contained in this abortus are shown in Figures 7 and 8. The larger measured 31 mm., but the smaller only 15 mm., indicating respective ages of 63 and 45 days. The chorionic vesicles belonging to these twins, which formed a single mass, are shown in Figures 9 and 10. The incised vesicle containing the smaller fetus is shown in Figure 10, and the larger vesicle, which is somewhat inverted, is shown in Figure 9. Since the latter had been opened and the larger fetus exposed, I at first overlooked the smaller fetus and found it only at a subsequent examination made for the purpose of determining the cause for the peculiar consistency and appearance of this portion of the abortus. The condition of the smaller fetus, which is well revealed in Figure 8 under a magnification of 4 diameters, is abundant evidence of the fact that it died a considerable period of time before the abortion occurred. This interval must have been several weeks. This specimen also nicely illustrates the fact that the death of one fetus does not necessarily result in the immediate abortion of it and its vesicle or of the other chorionic vesicle, as is sometimes still assumed.

Through the generosity of Dr. Gustetter I am also enabled to present reproductions of the fetuses spoken of in his article. They are shown in Figures 11 and 12, and from these illustrations it is clear that the smaller of the two fetuses probably stopped growth at about the sixth week. After this it became macerated and finally disintegrated, while the larger continued to grow, as in case of the specimen from Dr. Ross. The larger of these fetuses is practically normal in appearance except for the postpartum shriveling. It is approximately 100 days old.

Other specimens in the Mall collection, such as 2036 *a* and *b*, might well be included here, for one fetus was grouped as normal and the other as macerated. Indeed, it is a not very rare occurrence to find that the fetuses in a twin pregnancy had to be placed in different groups by Mall and his associates at the Carnegie laboratory. However, this was not done because such specimens were regarded as instances of superfetation, but because the fetuses, although of the same age, differed in form and appearance. It is interesting that

Fig. 11.—Pseudosuperfetus 2036 *b* from the Mall Embryological Collection.

Saniter[23] also reported a case of two unequally developed conceptuses from a tube. These conceptuses had separate chorionic vesicles, one of which was implanted in the isthmus and the other near the fimbria. The

22. Streeter: Unpublished data.

23. Saniter: Ber. d. Ges. f. Geb. u. Gynäk., Berlin Centralbl. f. Gynäk. **27**, 1903.

former was said to be only of the third to the fourth week, while the latter contained a fetus 4 cm. long. Both chorionic vesicles were said to have ruptured freshly. In commenting on this case of Saniter's, Werth[24] says that he regards the question as to whether it was a case of superfetation or merely one of twin pregnancy an open one.

It may be recalled that the occurrence of fetus papyraceus in cases of twin pregnancy also has been attributed in the past to superfetation. Moreover, as stated above, intra-uterine death of one or more fetuses belonging to the same litter is relatively common in some mammals. However, since Jenkinson[25] stated that the allantois and its blood vessels and also the syncytium are regularly retained at birth in some marsupials, to be absorbed later through the activity of maternal leukocytes, it is evident that one must use caution in judging on the basis of experience in other mammals, especially the lower ones. In some of these the conditions apparently are quite different from those

Fig. 12.—Similar specimen, No. 2036 *a*, from the Mall Embryological Collection; × 3.

encountered in man, and Strahl and Henneberg[14] pointed out that in the mole the entire placenta and membranes, as Hubrecht stated, often are retained for a month after parturition. No one would assert, to be sure, that the human uterus shows the same tolerance or the same resorptive power, yet the daily experience of physicians as well as the literature in obstetrics and gynecology is replete with instances of retention of the membranes or the entire conceptus long after the death of the fetus. Although the presence of a surviving conceptus in multiple pregnancy materially alters the intra-uterine conditions, it also would seem to predispose to retention rather than to hasten the expulsion of the dead mate. That is, the survival of one twin, especially in the earlier stages of development, may depress rather than enhance the factors that lead to abortion.

The impulses arising from the presence of the dead fetus may be counterbalanced or offset for a time, at least, by the presence of the living fetus, and thus tend to prolong the status quo. This would be the case particularly, whenever, as in the specimen donated by Dr. Ross, the two chorionic vesicles are fused into a single mass; for then the portion belonging to the dead fetus, even if it forms one half of the combined mass at first, soon is outstripped in size by the surviving vesicle, which, in the absence of infection, may continue to grow quite undisturbed, for some time at least; and even in the case of infection of the dead vesicle, prompt invasion of the living does not necessarily occur. Aside from clinical experience, this was indicated also by the experiments of Maffuci[26] on incubating eggs and on pregnant rabbits and guinea-pigs. The apparent resistance of the young fetus to syphilis, the characteristic lesions of which have not as yet been successfully demonstrated in fetuses much before the first half of pregnancy, also would seem to point in the same direction.

CONCLUSION

From these considerations it would seem to follow that especially favorable conditions for the production of gross differences would seem to exist in some cases of twin pregnancy. Hence it need not surprise us that these differences have been largely responsible for the quite general belief in the occurrence of superfetation in women. But at present it remains merely a possibility; for the evidence on which this belief rests is wholly inadequate, and it is interesting to recall that in the past, fetus papyracei also have been regarded as examples of superfetation as illustrated by the specimens reported by Fasola.[27]

I gladly acknowledge my indebtedness to Prof. George S. Huntington for the cat fetus shown in Figure 2 and to Profs. Mary Harman and Albert Kunz and the Nistar Institute and the Modern Hospital Publishing Company for permission to reproduce illustrations from their publications.

24. Werth, R.: Extrauterinschwangerschaft, Handbuch der Geburtshilfe von Winckel **2**, Pt. 2, Wiesbaden, 1904.
25. Jenkinson, J. W.: Vertebrate Embryology, 1913.
26. Maffuci, A.: Ueber das Verhalten des Embryo gegen Infectionen, Centralbl. f. allg. Path. u. path. Anat. **5**, 1894.
27. Fasola, E.: Alcune considerazioni sopra tre gravidanza gemelle, Ann. di ostet. **9**, 1887.

EXPERIMENTAL MOSQUITO CONTROL IN RICEFIELDS

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During 1918, observations near Lonoke, Ark., extending over the entire rice-growing season from June to September inclusive, indicated the general prevalence of the following conditions:

1. *Anopheles* breeds within the rice fields in about equal quantities with *Culex*, both being found in moderate abundance.

2. Breeding occurs with fair uniformity over the entire field, with slight preference shown for the more open water along levees.

3. Breeding of both *Anopheles* and *Culex* begins ten days or two weeks after fields are flooded, and continues, with some variations, until late in September, when it diminishes gradually.

4. Top-minnows in the fields are to be found usually along the levees or at the water inlet, but rarely are they seen in midfield.

5. Predatory insect larvae, principally *Hydrophilus, Dytiscus* and certain *Odonata* (damsel-flies), are usually abundant enough to constitute a probable factor in the natural destruction of mosquito larvae.

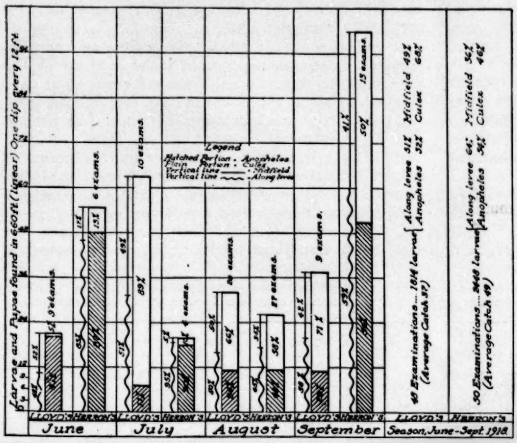


Chart 1.—Average larvae content, per examination, of rice plots while unaffected by remedial measures, by months. Each examination covers twenty-seven composite dips along the levee (330 ft.) plus twenty-seven dips in midfield, over like distance.

The foregoing observations are based on standardized and comparable examinations, forty-eight at one farm and fifty at another some miles distant. Essentially similar results were obtained at each farm, excepting that *Anopheles* outnumbered *Culex* at one farm, while the reverse was true at the other place. Also, at the first farm, total larval production was greater by about 29 per cent.

These examinations were conducted on ten small fields of one acre each, isolated by levees, but forming a part of a larger rice field, and being subject to the same treatment as regards seeding, watering, etc., as was this larger field. Frequent examinations were made of this large field, and of other near-by ricefields, and it was found that essentially the same conditions as to kind, number and distribution of mosquito larvae, and presence of fish and insect larvae prevailed here as were found throughout the season in the small fields under constant observation.

In view of the interest and great practical importance attached to *Anopheles* as a factor in the dissemination of malaria, it became desirable to know whether any practical application of remedial measures were possible in the ricefields, to the end that these vast, newly formed breeding areas might yield the minimum of malarial mosquitoes without interference meantime with the maximum yield of rice.

In considering any measures to reduce breeding of mosquitoes in ricefields, a vital factor is the presence of the rice itself. It is obvious that a ricefield cannot be drained in order to abolish mosquito breeding, nor can the water be treated with any larvicidal material that would endanger the rice crop. These restrictions with respect to treatment increase the difficulty of the problem in hand.

A further matter of importance is the item of expense involved. Any considerable addition to the present heavy expense of raising a crop would render a given remedy impossible of practical application by the rice farmers.

Keeping in mind the important factors of effective larvicidal action, no injury to rice crop, and cheapness and ease of application, investigations were undertaken to determine the practicability of employing certain measures to control mosquito breeding in the ricefields near Lonoke, Ark.

At each of two rice farms, five one-acre plots were used for this study. One plot at each place was reserved as control, no remedial measures of any kind being applied. On the remaining four plots at each farm, (1) fuel oil (technically known as "gas oil"), (2) "two-plus-one" oil mixture, (3) top-minnows (*Gambusia*) and (4) intermittent flooding, were the respective control measures applied. All five plots at each place bore the usual rice crop.

TECHNIC

1. The deeper water along the levee was examined by taking a composite dipperful every 12 feet for the length of the levee, or 330 feet, the dipper being filled by three or four partial dips taken while traversing the distance of 12 feet. After the number of larvae and pupae had been recorded, these were replaced in the field.

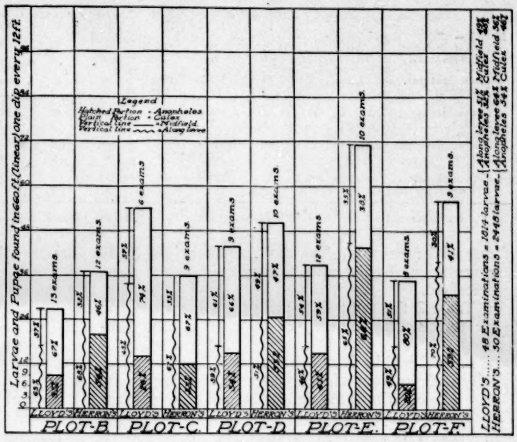


Chart 2.—Average larvae content, by plots, per examination (during the entire season), of the five plots while unaffected by remedial measures.

2. This procedure was repeated for a like distance, 330 feet, in midfield.

3. The total number of larvae and pupae thus found along levee and in midfield was regarded as the "catch."

4. Presence of other forms of life, both plant and animal, was noted and recorded. Beginning with August, definite count was kept of larvae of beetles, damsel-flies, etc.

Thus one examination of a plot included inspection of about fifty-four composite dipperfuls taken along levee and in midfield, together with observations as to the presence of aquatic insects and their larvae, also as to fish and crayfish, algae, and other aquatic plants, especially *Chara*.

In Table 1 is summarized the seasonal history of the several plots at Lloyd's farm. The forty-eight examinations here tabulated were taken at such times as the plots concerned were not showing the effects of remedial measures. The data are therefore fairly representative of conditions as they exist in the average ricefield.

In Table 2 the same data are grouped by plots, to facilitate comparative study of the several units concerned.

In Table 3 will be found the seasonal history shown by fifty examinations of the plots at the Herron farm, and in Table 4 the same data arranged by plots, for comparative study.

In Chart 1 is shown graphically the average catch at each farm during the several months of the rice season. The totals; the proportion of *Anopheles* to *Culex;* and the relative catch along levees and in midfield, are also shown. In Chart 2 the same data are arranged by plots. Charts 3 and 4 show seasonal fluctuations of larvae in all plots, and the effects of remedial measures used.

TABLE 1.—BREEDING OF MOSQUITOES IN RICE PLOTS AT LLOYD'S, 1918, BY MONTHS, ALL PLOTS, B TO F, INCLUSIVE

	Along Levee				In Midfield				Totals for Plots			
	Anopheles I	Culex II	Total III	Insect Larvae IV	Anopheles V	Culex VI	Total VII	Insect Larvae VIII	Anopheles IX	Culex X	Mosquito Larvae XI	Insect Larvae XII
June—												
9 examinations	94	0	94	Present	88	8	96	Present	182	8	190	Present
Average	10	0	10		10	1	11		20	1	21	
July—												
10 examinations	41	282	323	Present	29	281	310	Present	70	563	633	Present
Average	4	28	32		3	28	31		7	56	63	
August—												
20 examinations	113	200	313	63*	112	222	334	57*	225	422	647	120*
Average	6	10	16	5	6	11	17	4	11	21	32	9
September—												
9 examinations	60	134	194	56	42	108	150	50	102	242	344	106
Average	7	15	22	6	5	12	17	6	11	27	38	12

* Only thirteen catches of beetle larvae.

TABLE 2.—BREEDING OF MOSQUITOES IN RICE PLOTS AT LLOYD'S, 1918, BY PLOTS, JUNE TO SEPTEMBER, INCLUSIVE

	Along Levee				In Midfield				Totals for Plot			
	Anopheles I	Culex II	Total III	Insect Larvae IV	Anopheles V	Culex VI	Total VII	Insect Larvae VIII	Anopheles IX	Culex X	Mosquito Larvae XI	Insect Larvae XII
Plot B—												
13 examinations	76	142	218	56*	39	92	131	43‡	115	234	349	99*
Average	6	11	17	9	3	7	10	7	9	18	27	17
Plot C—												
6 examinations	63	138	201	8†	21	104	125	8†	84	242	326	16†
Average	11	23	34	4	4	17	21	4	14	40	54	8
Plot D—												
9 examinations	55	102	157	12‡	81	157	238	15‡	136	259	395	27‡
Average	6	11	17	2	9	17	26	3	15	29	44	5
Plot E—												
12 examinations	82	128	210	28‡	109	148	257	18‡	191	276	467	44‡
Average	7	11	18	6	9	12	21	3	16	23	39	9
Plot F—												
8 examinations	32	106	138	15§	21	118	139	25§	53	224	277	40§
Average	4	13	17	4	3	15	17	6	7	28	35	10

* Six catches only. † Two catches only. ‡ Five catches only. § Four catches only.

FUEL OIL ON LLOYD'S FARM

Application.—Rice was from 18 to 20 inches high, and in the stooling stage, when fuel oil was applied by a drip-can placed 5 feet above the water surface at the entrance gate. Oil at the rate of 30 gallons per acre was delivered to the water as it passed through the gate to flood the plot.

Distribution.—The spread of oil film was unsatisfactory. Continuously opposed in its progress by the rice stalks, most of the oil remained for several days puddled to some extent within 20 feet of the drip, and only after a week or more was an oil film perceptible 150 feet away.

Effects.—1. On Rice: Wherever much oil came in contact with rice, the stalks were "climbed" and discolored, and some were killed. No injurious effects were observed when only a thin film of oil was present.

2. On Mosquito Larvae: Larvae were killed wherever the oil film penetrated. Results were immediate near the drip, but were delayed elsewhere, because oil did not spread. Near the drip the oil apparently remained effective for about four weeks.

FUEL OIL ON HERRON'S FARM

Application.—The rice was about 3 feet high, and was beginning to blossom. The oil was applied by means of broadcasting oil-saturated sawdust, one bushel of sawdust absorbing about 3 gallons of oil. This procedure was for a twofold purpose: (1) to secure uniform distribution of the oil among the rice, and (2) so to apply this oil to the plot that the rice crop would not be injured thereby. The use of 26 gallons per acre, applied in this way, gave a uniform but thin film over the entire plot.

Effects.—1. On Rice: There were no injurious effects. The oil did not puddle, or climb the rice stalks.

2. On Larvae: The larvicidal action was immediate. Examination two days after application showed reduction of 85 per cent., and four days after application 74 per cent. reduction was noted. In eight days, the presence of minute larvae in large numbers indicated resumption of breeding.

In a second application nearly one month after the first one, 35 gallons of oil were applied by use of saturated sawdust. The results were highly satisfactory. The rice was not injured, and examinations of the plot four days, one week and two weeks after application of the oil gave wholly negative results as to the presence of larvae.

TWO-PLUS-ONE OIL MIXTURE ON LLOYD'S FARM

Application.—The rice was from 18 to 20 inches high and in the stooling stage. The oil (two parts of kerosene plus one part of black oil) was applied by a drip-can placed 5 feet above the water at the entrance gate. It was intended to apply 30 gallons per acre, but persistent clogging of the drip and puddling of oil in the rice made this impossible.

Distribution.—The spread of oil was very poor. Most of the oil apparently remained hopelessly puddled about 10 to 15 feet around the drip. Several days of very hot weather seemed to help matters, but the better distribution may have been due to the separating of the lighter kerosene from the heavy black oil in the mixture.

Effects.—1. On Rice: A few square yards of rice about the drip were killed, but no other damage was apparent. The rice stalks were not climbed or discolored.

2. On Larvae: These were killed wherever the oil film extended. After six days, larvicidal action was observed 50 feet away from the drip. Limited larvicidal action was indicated along the levee from 60 to 80 feet away, eight days after application. The results were not uniform or satisfactory, probably owing chiefly to poor distribution of the oil.

TWO-PLUS-ONE OIL MIXTURE ON HERRON'S FARM

Application.—A thick stand of rice was about 3 feet high and beginning to blossom, when 27 gallons of two-plus-one oil mixture were applied by means of saturated sawdust. The resulting oil film was quite uniform.

Effects.—1. On Rice: No damage resulted.

2. On Larvae: Larvicidal action was immediate and fairly satisfactory. The presence of very small larvae one week later indicated breeding but not production of sanitary importance. Very probably the amount of oil used was not sufficient for the best results.

A second trial of this oil mixture was made several weeks later. In this case "fuel oil" was substituted for the more expensive kerosene in the mixture. Thirty-three gallons were applied to one acre of rice, which was very thick and beginning to ripen. Distribution was effected by oil-soaked sawdust.

No damage resulted to the rice. Larvae were quickly and heavily reduced, but were not quite eliminated. Examination one week after application showed a reduction of larvae by 93 per cent. In two weeks, however, breeding had begun again, as shown by moderate numbers of very young larvae. This

TABLE 3.—BREEDING OF MOSQUITOES IN RICE PLOTS AT HERRON'S, 1918, BY MONTHS, PLOTS B TO F, INCLUSIVE

	Along Levee				In Midfield				Totals for Plots			
	Anopheles I	Culex II	Total III	Insect Larvae IV	Anopheles V	Culex VI	Total VII	Insect Larvae VIII	Anopheles IX	Culex X	Mosquito Larvae XI	Insect Larvae XII
June—												
6 examinations	253	20	273	+	36	18	54	+	289	38	327	+
Average	42	3	45		6	3	9		48	6	55	
July*—												
4 examinations	70	4	74	+	0	4	4	+	70	8	78	+
Average	18	1	19		0	1	1		18	2	20	
August—												
27 examinations	208	249	457	363	102	152	254	260	310	401	711	622
Average	8	9	17	13	4	6	10	10	11	15	26	23
September—												
13 examinations	442	336	778	198	224	330	554	184	666	666	1,332	382
Average	34	26	60	15	17	25	42	14	51	51	102	29
October†—												
3 examinations	30	62	92	36	14	6	20	32	44	68	112	68
Average	10	21	31	12	5	2	7	11	15	23	38	23

* All plots drained for two weeks to get rid of "rice root maggot."
† One examination each of three plots only—B, E and F (these data are omitted from Charts 1 and 2).

TABLE 4.—BREEDING OF MOSQUITOES IN RICE PLOTS AT HERRON'S, 1918, BY PLOTS, JUNE TO OCTOBER, INCLUSIVE*

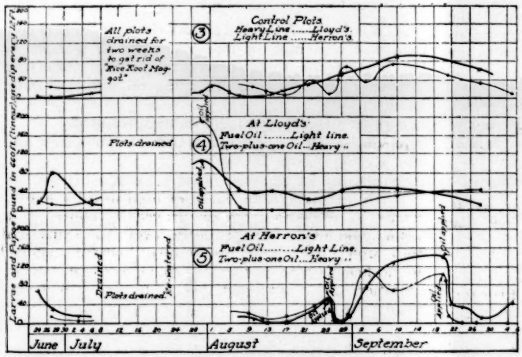
	Along Levee				In Midfield				Totals for Plot			
	Anopheles I	Culex II	Total III	Insect Larvae IV	Anopheles V	Culex VI	Total VII	Insect Larvae VIII	Anopheles IX	Culex X	Mosquito Larvae XI	Insect Larvae XII
Plot B—												
13 examinations	171	149	320	232†	74	58	132	192†	245	207	452	424†
Average	13	11	24	19	6	4	10	17	19	16	35	36
Plot C—												
9 examinations	76	145	221	130‡	36	72	108	98‡	112	217	329	228‡
Average	8	16	24	19	4	8	12	14	12	24	36	33
Plot D—												
10 examinations	175	67	242	97‡	74	150	224	44‡	249	217	466	141‡
Average	18	7	24	14	7	15	22	6	25	22	47	20
Plot E—												
11 examinations	356	139	495	57§	106	150	256	62§	462	289	751	119§
Average	32	13	45	6	10	14	24	7	42	26	68	13
Plot F—												
10 examinations	225	171	396	80¶	86	80	166	80¶	311	251	562	160¶
Average	23	17	40	10	9	8	17	10	31	25	56	20

* This table includes the three October catches at Herron's which are not included in Charts 1 and 2.
† Twelve examinations. ‡ Seven examinations. § Nine examinations. ¶ Eight examinations.

presence of very young larvae cannot be considered to be of sanitary importance.

TOP-MINNOWS (GAMBUSIA) ON LLOYD'S FARM

The rice was from 18 to 20 inches high and in the stooling stage when 1,400 top-minnows, obtained locally, were uniformly distributed by placing them at various points in the plot.



Charts 3, 4 and 5.—Larval history of plots showing effects of remedial measures (fuel oil and two-plus-one oil).

Distribution.—Although they were placed all over the plot, subsequent examinations indicated that practically all the minnows were along the levees (where the water was deeper) and especially at the entrance when the water was flowing on plot. They were rarely seen in midfield.

Effects.—Mosquito larvae showed a reduction of about 70 per cent. in one week. Subsequent weekly examinations disclosed the continuance of approximately these conditions for eight weeks, when examinations ceased.

TOP-MINNOWS ON HERRON'S FARM

The rice was about 3 feet high and partly in blossom when 800 top-minnows were distributed in the plot.

Distribution.—Subsequent observations revealed that these fish showed decided preference for flowing water near the gate, and for the deeper water along the levees. Only an occasional minnow was seen in midfield.

Effects.—The initial content of larvae was reduced by about 35 per cent. in two days, but in one week there was an actual increase of 85 per cent. This increased larval content continued with little change for nearly five weeks. However, most of the larvae that constituted the increase were so small that the fish could find them with difficulty or not at all. It seems evident that the efficiency of the fish cannot be justly measured by the relative abundance of these very small larvae, but that the practical absence of large larvae and of pupae is a truer indication.

INTERMITTENT FLOODING OF LLOYD'S FARM

A thick stand of rice about 20 inches high was on plot when water was first withdrawn in order to get rid of mosquito larvae. The water was drained into a large ricefield adjoining. The plot was reflooded within a week.

Effects.—1. On Rice: No effects were apparent.

2. On Larvae: Practically all larvae were removed as a natural result of draining the water into the adjoining field. It is not only probable that few were actually killed, but that, on the contrary, they continued to develop in the next field.

A small amount of water remained along the levees and in depressions of the plot. The common level of most of the land in the ricefields makes perfect draining impossible. A few larvae were to be found in these remaining puddles.

Eleven days after this plot was reflooded, larvae were again found in moderate abundance. This condition obtained until the plot was drained a second time, four or five weeks later.

The second draining removed nearly all the larvae. The plot was rewatered within a week. No examination was made for two weeks or more, when larvae were again present, but not in large numbers.

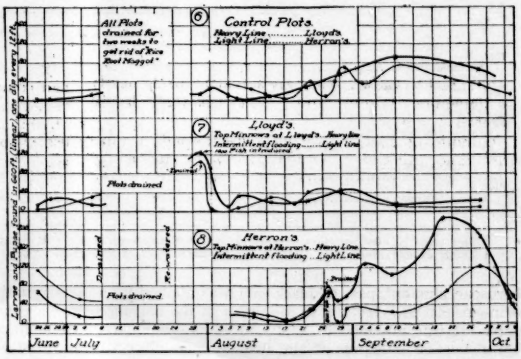
INTERMITTENT FLOODING OF HERRON'S FARM

The rice was beginning to blossom when the water was drained into the large ricefield adjoining. A small amount of water remained in depressions in the plot. Water was again turned in after one week.

Effects.—1. On Rice: No effects were apparent.

2. On Larvae: Most of the larvae were removed, but the small amount of remaining water showed moderate numbers of larvae four days after draining.

Six days after reflooding the plot, a number of large larvae were found. These evidently had remained over, in the small puddles that could not be completely drained. Two and one-half weeks after reflooding, larvae were present in quantity. The plot was not drained, however, because the rice was "heading," and lack of abundant water at such a time would probably have resulted in serious injury to the rice.



Charts 6, 7 and 8.—Larval history of plots, showing effects of remedial measures (top-minnows and intermittent flooding).

The larval history of the control plots is shown in Charts 3 and 6 for comparison with the like history of other plots in which remedial measures were used (Charts 4, 5, 7 and 8). Examinations of these controls were made at the same time and in the same manner as of the other plots.

Unfortunately, conditions were not quite normal in the control plot at Lloyd's, owing to the presence of a heavy growth of filamentous algae during August and the first part of September which covered a considerable portion of the water surface and thus greatly reduced the surface area available for mosquito breeding. To this condition (which was not present in other plots) is probably due the relatively low content of larvae.

The control plot at Herron's was unfortunate also in the latter part of the season, when hogs broke the levee and caused the loss of water which could not be replaced at the time. To this the low count in September is evidently due. For some reason not apparent, other counts in this control plot were low, and showed heavy fluctuations (Chart 3).

SUMMARY

1. The average larval catch (in about fifty-four composite dipperfuls) at Lloyd's was thirty-seven, and at Herron's it was forty-nine (Chart 1).

2. *Anopheles* predominated slightly during the season in the Herron plots, forming 54 per cent. of the season's catch. *Culex* predominated at Lloyd's, forming 68 per cent. of the total catch of the season (Charts 1 and 2).

3. Breeding along levees, forming 64 per cent. of the total, exceeded that in midfield in the Herron plots, but at Lloyd's, breeding was about equal in the two locations (Charts 1 and 2).

4. *Anopheles* larvae were relatively most abundant in June and July. In the latter month, *Culex* gained ascendency in the Lloyd plots and retained the lead the entire season (Chart 1).

5. Insect larvae are relatively abundant, being nearly as numerous, in some cases, as are mosquito larvae (Tables 1 to 4).

6. Both the fuel oil and the two-plus-one oil mixture failed to spread through rice when applied by drip-can, but uniform distribution with satisfactory larvicidal action without harm to rice was secured by the use of oil-saturated sawdust.

7. Plot E at Lloyd's, containing 1,400 top-minnows, shows immediate reduction of larvae, with satisfactory duration of this good result. Plot E at Herron's, with 800 top-minnows, shows poor results apparently, but most of the larvae found were very small and may have escaped the fish only temporarily (Charts 7 and 8). In many of these experiments the practical absence of pupae and any larvae except small ones must be looked on as indicating effective control, and not in the light of production in public health quantities.

In the same plot, insect larvae were so few (relatively) as to indicate probable depredations by fish.

8. During the season, 129 examinations were made. These reveal the larval history for the entire season and are plotted in Charts 3 to 8, inclusive. Of these examinations, ninety-eight were taken when plots showed no distinct effects of remedial measures applied. Results are shown in Charts 1 and 2.

CONCLUSIONS

1. Intermittent flooding as a control measure is probably not feasible, owing to the additional cost of water and to the usual impossibility of the transferal of larvae beyond flight distance.

2. The preference shown by top-feeding minnows for the deeper, flowing water along levees and their evident avoidance of the midfield make them a doubtful control measure. Nevertheless, they have demonstrated under experimental conditions what has been observed under field conditions in Arkansas, Louisiana and California, that their presence means a considerable reduction in mosquito larvae.

Roadside ditches containing top-feeding minnows usually show larvae very few or absent. The ditch, however, is not comparable with the ricefield as an environment because of great differences in area, in abundance of obstructions for fish, and in amount of light.

3. Oil of the various varieties used in these experiments by drip-can methods proved a failure. The results obtained when used with sawdust are such that they offer future hopes for ultimate mosquito control in ricefields within reasonable flight distance of communities, and a corresponding reduction of incidence of malaria.

THE RELIABILITY OF THE NYSTAGMUS TEST *

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Bárány wrote in 1912 that in Vienna no examination of patients with nervous symptoms was considered complete without a careful examination of the vestibular apparatus. Even then the profession abroad had come to realize that a complete ear examination is a great aid in general medical diagnosis. In the United States we have similarly come to realize the usefulness of ear studies, and at present otologists are being called on for examinations of the vestibular mechanism. The usual method of examination of this mechanism is to set the lymph within the labyrinth in motion by means of turning or douching, and then measuring the responses obtained. These responses are nystagmus and vertigo. Examinations of a very large number of individuals—more than a hundred thousand—have shown that in normal persons the average duration of the after-turning nystagmus is 24 seconds. This duration of nystagmus then came to be considered as one of the expressions of the normality of the vestibular mechanism. With this standard as a basis, examinations were conducted in pathologic clinical cases for a number of years, and whenever the nystagmus varied considerably from the normal 24, the vestibular mechanism was considered proportionately affected. Deductions, in the matter of diagnosis and location of intracranial lesions, based on this standard, proved remarkably accurate, as verified by subsequent operations or necropsies.

When we entered the war it became obvious that the army would require a large number of aviators.

* From the Medical Research Laboratory.

Realizing the arduous and unusual duties demanded of air pilots, every means was naturally adopted to insure the necessary high standard of physical qualifications; it was desired that the best physical material available be picked for this service. All the body mechanisms were carefully examined, such as the respiratory, cardiovascular, genito-urinary, muscular and visual, but in addition it was also deemed advisable in the case of prospective aviators to incorporate an examination of the vestibular apparatus, since such an examination throws light on the condition of the eighth nerve, medulla oblongata, pons, cerebellum and other portions of the nervous system, as well as of the ear itself as a motion-sensing organ. The degree of function of this mechanism could obviously be measured only by the responses obtained on stimulation. Nystagmus, being one of the important and the most easily measured of the responses, naturally received its share of attention in the examination of every candidate for aviation.

QUESTIONING OF THE RELIABILITY OF THE NYSTAGMUS RESPONSE

The reliability of the nystagmus response as a measure of function of the vestibular mechanism has recently come to be questioned, curiously enough not by otologists, but by certain learned and prominent psychologists. They promulgated the theory that persons subjected to considerable whirling or tumbling, such as acrobats and equilibrists, lost their nystagmus as a result of their training. When such a person was examined he would then probably show an impaired or absent nystagmus, which would therefore brand him as one having a subnormal vestibular apparatus, and hence unfit for aviation. This would mean a loss to the air service of the work of a very valuable man. Furthermore, they stated that fliers within the aviation service after having flown a considerable time would probably lose their nystagmus as a result of the whirling they were subjected to while in the air, and when reexamined would then be found below the required physical standards and taken off active flying.

This contention, that there is a suppression of the eye reaction in persons subjected to certain types of acrobatic exercises, would, of course, be a serious matter in the consideration of the examination of the vestibular apparatus from a general medical standpoint. If, for instance, patients on examination would exhibit a much shorter duration of nystagmus than the normal 24 seconds, it would naturally have no definite significance, since there was no telling how practiced the particular individual under consideration was in the matter of rotation. That is, he may have been fond of dancing or tumbling or what not.

This point of view may be summed up briefly, thus: A reflex reaction may disappear as a result of frequent repetition; this disappearance need not necessarily indicate a pathologic condition. Clinical medicine has for years relied on the permanency and constancy of reflex phenomena. Medical men have come to place a great reliance on the appearance or nonappearance of the knee jerk, the elbow jerk and the pupillary, Babinski and other reflexes. The assumption, therefore, that one may develop a tolerance and eventually fail to exhibit a reflex simply as a result of training is so contrary to the medical conception of the behavior of reflexes generally that it naturally became a subject of investigation at the Medical Research Laboratory at Mineola, L. I. The Otologic Department was particularly concerned in determining just how much reliability could be placed on the appearance or the nonappearance of nystagmus after stimulation, and just what effect continued practice would have on this interesting reflex.

RESULTS OF TESTS

Attention was first directed to the nystagmus reaction in fliers of varying experience. Flying generally, and stunt flying particularly, entails whirling to such a marked extent that any person who has flown thousands, or hundreds, of hours has certainly undergone more practice in whirling than most persons would undergo throughout the ordinary course of their lives. These examinations revealed uniformly that fliers of even 2,000 hours' flying experience continue to exhibit a good active nystagmus of the usual duration, approximately 24 seconds. Wherever possible these results were checked up with the nystagmus findings of the same persons at the time of their original examinations when they first entered the service, and in no instance was there found a reduction in the duration of nystagmus. We examined at Mineola 942 veteran fliers. The

TABLE 1.—VESTIBULAR EXAMINATIONS BY LEWIS

Subject	Occupation	Nystagmus Right, Seconds	Nystagmus Left, Seconds	Comment
L. L.	Whirling artist	26	24	
J. S.	Equilibrist	26	24	
C. G.	Balance equilibrist	25	20	
E. B.	Whirling artist	34	35	
I. D.	Tight and slack wire artist	28	33	
C. F.	Whirling dancer	29	31	
I. H.	Whirling dancer	27	28	
E. M.	Head balancer	34	31	41 yr. old, 20 years' experience
P. A.	Perch act	31	38	20 yr. old, 13 years' experience
C. A.	Perch act	21	24	28 yr. old, 13 years' experience
Mrs. S.	Whirling act	31	25	
Mrs. H.	Whirling act	22	24	
Mrs. S.	Aerial flying trapeze	17	18	50 yr. old, 30 yr. in circus
L. M.	Head balancer	37	30	18 yr. old, 9 years' experience
A.	Tight rope walker	26	26	
B.	Tight rope walker	26	26	
C.	Motordrome whirling racer.	22	24	26 yr. old, 6 years' experience
D.	Motordrome whirling racer.	26	26	23 yr. old, 5 years' experience
E.	Motordrome whirling racer.	26	26	26 yr. old, 6 years' experience
F.	Motordrome whirling racer.	8	8	24 yr. old

average duration of the nystagmus after turning to right was 24.8 and after rotation to left, 25.08 seconds. Not content, however, with the results of the examination at Mineola, similar investigations were conducted by trained otologists at the various other flying fields throughout the country, with identical results. Capt. Louis Levy,[1] M. C., an otologist unusually experienced in the method of conducting this special examination, reports the results of his personal examination of a consecutive series of 541 aviators, in which the average duration of the nystagmus after turning to the right was 24.6 seconds and the average nystagmus after turning to the left, 24.4 seconds. Lieut. Charles R. Brenner, M. C., another trained observer, reports sixty-three consecutive examinations of fliers, whose average flying experience is 128.4 flying hours. The average nystagmus after turning to right is 25.3 and after turning to left, 25.4.

All the foregoing findings in fliers are sufficiently convincing to have it definitely settled once and for all

1. Levy, Louis: Vestibular Reactions in Five Hundred and Forty-One Aviators, J. A. M. A. 72:716 (March 8) 1919.

that army aviators do not lose their nystagmus as a result of the rotation and whirling to which they are subjected. Therefore, when a flier, who on admission had a normal nystagmus, is found at some later time to have a marked impairment of this reaction, it is due to some other cause than flying per se.

The usual statement that acrobats and whirling stage-dancers lose their nystagmus is not borne out by our investigations. We have examined numbers of such persons, and they uniformly show a normal nystagmus. Leut.-Col. E. R. Lewis, M. C., reports vestibular examinations of a number of such persons: The nystagmus observed is given in Table 1.

The average nystagmus in these whirling artists, turning to the right, is 26.1 seconds, and turning to the left, 26.05 seconds. These findings certainly suggest that the occupation of the subjects had no tendency whatsoever to diminish the duration of nystagmus. In fact, they exhibit normal reactions.

TABLE 2.—NYSTAGMUS REACTIONS AT MINEOLA

Date	E. L. B. R.	E. L. B. L.	H. M. T. R.	H. M. T. L.	R. H. B. R.	R. H. B. L.	G. C. H. R.	G. C. H. L.	B. B. J. R.	B. B. J. L.	C. J. M. R.	C. J. M. L.
9/26	26	28	24	28	..	..	..	..	..	..	..	..
9/27	22	26	20	28	..	..	..	..	..	..	..	..
9/28	24	25	26	25	30	33	40	37	26	34	27	27
9/30	27	23	25	27	..	..	..	..	..	..	..	..
10/ 1	25	24	27	22	29	33	..	..	..	..	33	25
10/ 2	27	24	22	25	40	31	38	36	28	31	27	27
10/ 3	22	20	21	20	25	29	24	30	34	30	22	23
10/ 4	22	21	18	21	..	..	..	..	..	..	20	19
10/ 5	21	20	21	21	..	..	..	..	..	..	23	20
10/ 7	23	19	20	23	29	29	31	30	..	..	20	21
10/ 8	21	20	..	..	24	29	33	30	..	..	23	21
10/ 9	22	23	20	22	25	26	31	34	..	..	24	24
10/10	25	21	24	23	29	29	32	34	..	..	22	22
10/11	16	20	18	21	27	28	30	33	31	31	24	23
10/12	20	21	24	20	22	24	30	30	28	29	23	20
10/14	23	21	18	24	..	..	32	28	22	26	23	22
10/15	20	16	20	22	22	21	30	32	26	30	21	19
10/16	..	..	19	22	25	24	23	27	30	33	22	24
10/17	..	..	24	27	28	26	31	30	..	..	22	23
10/18	..	..	25	21	27	32	26	25	27	30	24	19
10/19	..	..	24	24	21	22	25	..	25	25	..	..
10/21	..	..	20	18	19	21	27	25	24	23	23	23
10/22	24	19	21	22	22	28	..	..	30	30	19	24
10/23	22	21	22	28	20	22	33	29	20	21	18	21
10/24	16	19	21	24	..	..	23	32	23	21	17	19
10/25	20	19	21	23	19	23	24	23	20	23	..	..
10/26	30	28	..	..	25	31	34	27	24	23	25	24
10/28	26	24	22	23	21	23	..	..	24	25	22	25
10/29	18	19	25	27	26	28	34	34	..	..	25	28
10/30	22	23	25	25	28	26	28	29	28	27	23	22
10/31	22	27	28	26	24	28	30	20	22	25	..	..
11/ 1	..	..	19	23	25	24	30	28	25	26	26	29
11/ 2	..	..	..	..	..	..	..	..	..	..	..	..
11/ 3	..	..	20	22	25	24	23	27	27	27	26	25
11/ 4	..	..	27	26	27	28	26	28	26	25	..	..
11/ 5	27	26	24	23	25	28	32	33	30	29	30	30
11/ 6	..	..	25	23	..	..	30	26	25	27	27	29
11/ 7	..	..	20	19	26	29	27	21	31	30	23	21
11/ 8	27	26	29	28	27	28	..	..	..	..	21	19
11/ 9	25	22	22	24	35	37	29	26	31	28	27	26
11/11	30	30	24	30	..	..	30	28	36	28	25	22
11/12	25	27	24	24	30	38	29	26	30	28	24	21
11/13	30	23	25	21	..	..	36	30	32	34	27	25
11/14	26	28	..	..	32	30	29	27	29	30	26	28
11/16	25	26	26	24	..	..	30	27	25	27	24	23
11/17	..	..	..	..	..	..	30	27	..	..	..	..
11/18	23	24	26	28	..	..	31	30	27	26	25	22
11/19	21	22	26	26	..	..	..	..	28	27	26	22
11/20	24	25	..	..	..	..	28	28	28	26	..	..
11/21	30	30	24	23	..	..	34	29	31	32	25	24
11/22	26	27	22	21	..	..	30	25	31	29	21	24
11/23	..	..	..	..	..	..	..	..	..	..	25	23
11/26	..	..	25	21	..	..	30	26	30	26	24	21

L. E. E.

	Right A.M.	Right P.M.	Left A.M.	Left P.M.
9/26	26	26	20	19
9/27	30	24	28	18
9/28	30	..	26	..
9/30	31	25	28	25
10/ 2	24	24	22	30
10/ 3	27	24	31	26
10/ 4	..	23	..	20
10/ 5	22	..	16	..
10/ 7	20	..	23	..
10/10	25	21	26	19
10/11	24	22	19	19
10/12	23	..	21	..
10/14	24	21	19	21
10/15	20	21	21	19
10/16	20	20	19	16
10/17	24	29	23	23
10/18	22	17	19	16
10/19	18	..	18	..
10/20	18	20	20	20
10/22	25	26	26	27
10/23	20	16	19	20
10/24	22	20	21	20
10/25	17	18	15	20
10/26	28	..	25	..
10/28	19	21	25	23
10/29	23	30	25	27
10/30	26	21	23	25
10/31	20	24	24	20
11/ 3	21	..	22	..
11/ 4	28	28	24	..
11/ 5	18	24	20	23
11/ 8	28	28	29	23
11/ 9	26	..	28	..

J. C. F.

	Right A.M.	Right P.M.	Left A.M.	Left P.M.
9/26	23	22	21	20
9/27	20	22	24	28
9/28	23	..	17	..
9/30	21	20	19	18
10/ 1	19	19	17	18
10/ 2	20	18	18	18
10/ 3	19	21	18	19
10/ 4	20	21	21	19
10/ 5	19	..	18	..
10/ 7	20	21	20	18
10/ 8	23	17	19	17
10/ 9	17	21	19	20
10/11	18	19	21	17
10/12	21	..	19	..
10/14	21	19	20	19
10/15	20	22	18	23
10/16	19	19	19	19
10/17	22	20	21	18
10/18	24	18	19	16
10/21	19	20	19	18
10/22	21	18	19	21
10/23	21	20	19	21
10/24	22	18	17	17
10/25	23	..	19	..
10/26	20	..	20	..
10/28	21	22	21	20
10/29	19	17	18	16
10/30	20	19	21	18
10/31	25	22	19	19
11/ 1	21	17	18	16
11/ 3	19	..	20	..
11/ 4	20	19	19	18
11/ 5	22	19	19	18
11/ 6	22	..	20	..
11/ 7	24	..	21	..
11/ 8	21	21	20	22
11/11	21	26	18	20
11/12	27	26	25	20
11/13	21	..	19	..
11/14	19	..	19	..
11/16	21	..	20	..
11/18	20	..	21	..
11/19	21	..	20	..
11/20	22	25	19	20
11/21	19	26	18	20
11/22	24	21	20	20
11/25	23	..	20	..
11/26	20	..	19	..

C. M. L.

	Right A.M.	Right P.M.	Left A.M.	Left P.M.
9/26	26	24	26	26
9/27	25	24	27	20
9/28	24	..	22	..
9/30	23	27	21	22
10/ 1	25	..	23	..
10/ 2	26	23	24	20
10/ 3	25	25	21	20
10/ 4	19	16	20	16
10/ 7	17	14	19	20
10/ 8	18	..	18	..
10/ 9	18	..	18	..
10/10	16	16	18	16
10/11	17	18	17	16
10/12	20	..	18	..
10/14	18	17	17	16
10/15	19	..	18	..
10/17	20	19	19	16
10/18	20	22	19	18
10/19	22	..	21	..
10/21	21	17	19	16
10/22	21	25	18	19
10/23	16	18	17	16
10/24	14	22	19	17
10/25	15	15	16	..
10/26	20	..	20	..
10/28	19	16	18	18
10/29	19	19	18	20
10/30	21	20	20	20
10/31	24	23	24	23
11/ 1	18	23	17	24
11/ 3	23	..	24	..
11/ 4	27	..	26	..
11/ 5	18	20	18	18
11/ 6	21	20	20	18
11/ 7	18	..	18	..
11/12	22	21	20	19
11/13	21	20	23	20
11/14	24	..	21	..
11/16	25	..	25	..
11/18	22	21	21	22
11/19	25	23	24	22
11/20	19	24	18	21
11/21	16	..	24	..
11/22	23	20	30	19
11/23	18	..	18	..
11/25	23	..	20	..
11/26	20	..	18	..

T. G. S.

	Right A.M.	Right P.M.	Left A.M.	Left P.M.
9/28	25	..	30	..
9/30	26	25	23	22
9/31	26	..	25	..
10/ 1	29	..	21	..
10/ 2	28	28	19	24
10/ 4	19	25	18	21
10/ 5	18	..	20	..
10/ 7	23	26	16	17
10/ 8	20	16	18	16
10/ 9	19	30	21	20
10/10	21	25	24	16
10/12	22	..	19	..
10/14	19	17	18	19
10/15	21	22	18	21
10/16	22	25	19	15
10/17	28	26	25	21
10/18	23	18	23	19
10/19	19	..	24	..
10/21	19	18	16	19
10/23	17	20	18	18
10/24	24	24	19	18
10/25	20	20	17	18
10/26	27	..	21	..
10/28	27	24	24	23
10/29	22	24	21	29
10/30	26	25	28	29
10/31	29	27	27	24
11/ 1	21	17	21	..
11/ 4	29	28	26	26
11/ 5	31	27	27	24
11/ 6	21	29	28	30
11/ 7	26	..	21	..
11/ 8	27	26	22	24
11/ 9	25	..	27	..
11/12	26	..	22	..
11/13	26	27	22	28
11/14	28	26	24	24
11/15	25	..	24	..
11/16	30	..	27	..
11/18	28	..	24	..
11/19	24	25	26	21
11/20	27	23	23	20
11/21	25	29	25	21
11/22	30	..	25	..
11/25	25	..	20	..
11/26	27	..	24	..

TURNING-CHAIR TESTS

There was also started at Mineola a series of experiments in which persons were subjected to frequent rotation in the turning-chair so that it could be determined just what effect, if any, such frequent and continuous rotation would have on their after-turning nystagmus. This experiment was suggested to the otologic department by the report of a similar series of experiments carried out by a group of observers trained in the observation and study of psychologic phenomena. These psychologists reported that persons who started with a nystagmus of 24 seconds or more on being subjected to daily turnings for several weeks would show either a complete loss of the nystagmus reaction to turning or a marked diminution. Since these experiments were conducted by observers not experienced in this type of examination, and as no medical examination had been made to determine

whether or not the subjects of their experiments were normal, the results could naturally not be accepted by otologists without corroboration. The Otologic Department of the Medical Research Laboratory at Mineola, therefore, saw fit to conduct a similar series of experiments. Ten adult persons were carefully selected and examined. The caloric test was performed, that is, each ear was douched with cool water. They were also examined in the turning-chair, and in addition the galvanic reactions were taken. In this manner it was determined that they were absolutely normal. Six of these subjects were turned to the right and left daily. Four subjects were turned in the same manner twice daily. Two subjects had many additional turnings, as much as 440 rotations in one day. The results of the nystagmus reactions in these cases are given in Table 2.

Throughout these tests it will be observed that now and then a day was skipped. This could not be avoided, since all of these subjects were enlisted men who because of other duties occasionally could not appear for the examination. These lapses, however, were so rare—about one day in seven—that they certainly have no effect on the findings. These records clearly indicate that:

1. Not a single subject has lost the nystagmus.
2. Not a single subject has shown even a marked impairment of the nystagmus reaction.

Careful analysis of these findings discloses that there appeared a slight reduction in the duration of nystagmus after two or three weeks of turning in *some* of the cases. Even this apparent shortening of the duration of nystagmus, however, was rather an increased proficiency of those subjects in "gaze fixing" than actual lessening of the stimulus. The daily practice of fixing the gaze at a distant object, which was required of them after each test, taught them the art of holding the eye more or less fixed voluntarily, so that the nystagmic excursions became smaller. That this was produced by training, resulting in an increased fixation control of the voluntary eye movements, and not the result of a change in the character or intensity of the vestibular stimulus, is suggested by the fact that it occurred only in a few subjects—in those more apt. Furthermore, it was demonstrated that placing a pair of plus 20 degree planoconvex lenses in front of the eyes of those subjects immediately brought back the original duration of the nystagmus. Observation of the resulting nystagmus made *behind* those lenses as well as *through* them confirmed beyond question that there was no real reduction of the duration of nystagmus following these experiments. Further turning, for three or four weeks, in which the convex glasses always were used, revealed no reduction whatever in the duration of nystagmus.

As stated, all the subjects received a complete examination of the vestibular apparatus before these experiments were undertaken. This examination included turning, douching and electrical stimulation. On the completion of the experiments—after nine weeks of daily rotation, another complete examination was made, and the findings on douching and from electrical stimulation gave results identical with those obtained on the very first examination. This simply furnishes additional evidence that the eye response to vestibular stimulation was not altered in these persons.

This finding is particularly interesting in the consideration of the relation of eye responses in their bearing to medical diagnosis generally. The fact that such a prodigious amount of whirling stimulation did not affect in the slightest degree the responses, obtained by douching, seems to confirm the principles long recognized in otologic practice. It emphasizes once again what perhaps was not quite clear to some observers: that impaired nystagmus after ear stimulation must be considered as the direct result of pathologic impairment of some of the nerve pathways that conduct the impulses from the ears to the eyes.

CONCLUSIONS

1. The duration of after-turning nystagmus is not impaired by flying. Such a very large number of aviators have been reexamined as to make this conclusion absolute and final.

2. From the evidence at hand, it would seem that in acrobats, whirling dancers, airdrome performers, and in athletes in general, there is no diminution of the nystagmus response. More examinations of such persons, however, would be necessary before any final conclusion should be drawn.

3. Repeated turning experiments on normal persons occasionally produce an "apparent" and slight shortening of the nystagmus, but that this is only apparent and not real is demonstrated by the convex glasses.

4. In medical practice, an absence or impairment of eye responses following ear stimulation definitely indicates a pathologic condition within the vestibular mechanism.

STREPTOCOCCUS HEMOLYTICUS IN WAR WOUNDS *

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The data presented herewith have been obtained in a study of the bacteriology of war wounds as seen in Base Hospital No. 43. We realize that studies made in a hospital in which the period of time from the incurrence of the wounds until their study is shorter may give an entirely different picture. However, we think that some conclusions of value may be drawn from the work here presented that may add to our general knowledge of the subject. A few of these patients came directly from the first aid dressing stations, some being seen with the original dressings intact. Many came later, while a considerable number had been transferred from other base hospitals.

This study includes 704 consecutive cases, in which 1,848 cultures were made from 985 wounds. Cultures were made of all wounds except very slight superficial lacerations. There was no selection of cases. With reference to the location of wounds, 48 per cent. were of the lower extremities; 26 per cent. of the upper extremities; 18 per cent. of the head and neck, and 20 per cent. of the trunk. Of those of the lower extremities 18 per cent. were with fracture and 82 per cent. without fracture; of those of the upper

*From Base Hospital No. 43 (Emory Unit).

extremities, 33 per cent. were with fracture and 67 per cent. without fracture; of those of the head and neck, 18 per cent. showed fracture, while 82 per cent. were without fracture, and of those of the trunk, 10 per cent. were with and 90 per cent. without fracture. When seen the first time by a medical officer, 40 per cent. were designated as "serious" and 60 per cent. as "slight" (these data being taken from the field card). The average length of time from the incurrence of the wound until a culture was made was ten days, the shortest period being one day and the longest thirty-seven days.

METHODS AND MEDIUMS

The first 130 cultures on ninety-seven wounds were made directly on blood agar plates. The method used was to place a small amount of the infected material on the plate and spread it over the surface by means of a bent platinum wire. Afterward incubation colonies resembling *Streptococcus hemolyticus* were transplanted to tubes of the same medium. In this series only 7 per cent. of positive cultures of this organism were found. Subsequently, after suggestions were received from the Central Medical Department Laboratory to the effect that Dunham's peptone, to which a small piece of fresh rabbit liver had been added, be used, the latter method was adopted and has been followed consistently. On account of the difficulty in securing rabbit liver we tried beef and human liver, which seemed to give the same results as the rabbit liver. The peptone was made up — 1, tubed in 5 c.c. quantities and then about 1 gm. of liver was added to each tube. This was then sterilized in the autoclave at 10 pounds for fifteen minutes. The liver turns dark, and there is a cloudy sediment which settles at the bottom of the tube, leaving the supernatant fluid clear. This medium was made up in large quantities and enough kept on hand at all times for a large number of cultures. On the arrival of a train bringing wounded, one officer and an enlisted man were placed at each surgical section with all material necessary to obtain smears and cultures from all wounds. In addition to taking the cultures, the clinical appearance of the wound was noted. When considered necessary, smears and hanging drops were made and examined in the operating room. In some very serious cases these investigations determined the course to be followed by the surgeon. But cultures were made for future confirmatory diagnosis. The cultures were made by means of sterile swabs introduced into the wounds and immediately inoculated into the liver peptone medium. These cultures were examined by the hanging drop and Gram's stain of smear at the end of six or eight hours. In some cases the streptococcus developed in from four to five hours in this medium. The hanging drop gives most valuable information at this stage. The cocci appear in long and short curved chains. We have not been able to demonstrate any motility of the chains of cocci. At the same time it may be determined what course to follow for the identification of other aerobes and anaerobes when original independent cultures were not made for anaerobes. A preliminary report from this study is submitted to the surgeon in charge of the case. All tubes showing growth are transplanted to blood agar plates. After incubation of the plates for from eighteen to twenty-four hours in the inverted position, isolated colonies with well defined colorless zones of hemolysis are picked and transplanted. For the further identification the methods adopted by the Medical Department of the Army were followed.[1]

GENERAL OBSERVATIONS

Of the total number of wounds, 24 per cent. were found to harbor *Streptococcus hemolyticus*. The clinical appearance of the wound gave no information as to the probable presence or absence of this organism. This was especially noted by Major Frank K. Boland, M. C., chief of the surgical service, and by other members of the surgical staff, as well as by members of the laboratory staff. Some of the wounds that appeared fairly clean would harbor this organism and would respond much more slowly to treatment than others apparently much more severely infected but which would clear up almost magically with the use of neutral solution of chlorinated soda (Dakin's solution). A further observation was that the bacterial count came down much more rapidly in those wounds in which *Streptococcus hemolyticus* was absent. Although these streptococcus wounds did not respond as rapidly as the others to Dakin's solution, no other method of treatment was found that was an improvement over this method. The early observation thus made with reference to the significance of the kind of bacteria contained in wounds led us to regard as of minor importance the bacterial count. In fact, the bacterial count, even when carried out with the most exact technic, can compare in no way with the bacterial cultivation of wounds. It is of some value in following the progress of the wound from day to day, but its use alone gives very little idea as to the kind of bacteria present. Thus a wound containing many harmless saprophytes may be closed successfully, whereas any wound showing a positive culture of *Streptococcus hemolyticus* should not be closed. Further, the number of smears suggesting the presence of this organism is much less than the number actually shown to be positive by culture.

In connection with this work, an investigation of the possible carriers of *Streptococcus hemolyticus* at this hospital was made. Of 308 medical officers and nursing personnel (nurses and orderlies), throat cultures showed 1.6 per cent. to be carriers. Of 600 patients, exclusive of those with respiratory disease, 5.2 per cent. were carriers.

MORTALITY

In the total series there were five deaths directly attributable to *Streptococcus hemolyticus* infection.

CASE 1.—A. B. had a multiple gunshot wound of the left arm. The severity of injury necessitated amputation at the evacuation hospital, 1 inch below the surgical neck of the humerus. *Streptococcus hemolyticus* was isolated from the stump on arrival here ten days after amputation. A blood culture was positive for this organism. Seven days later the patient developed a streptococcus meningitis, which proved fatal on the fourth day.

CASE 2.—J. K. had a multiple gunshot wound affecting (1) the face through both mandibular rami, (2) the left hand (penetrating), (3) the left foot (perforating), and (4) the right thigh (middle third, perforating). The patient recovered from initial shock. Wounds 1, 2 and 4 improved rapidly. Wound 3 showed, on culture, *Streptococcus hemolyticus*. Two weeks later a blood culture was positive for the same organism. The patient succumbed to septicemia sixty-nine days after primary injury.

1. Methods for the Isolation and Identification of the Streptococcus Hemolyticus, Adopted by the Medical Department, U. S. Army, June 1, 1918.

Case 3.—H. H. had a lacerated gunshot wound of the calf of the left leg. Débridement was performed on arrival at this hospital eight days after injury. The culture showed *Streptococcus hemolyticus*. Amputation at the lower third of the thigh was undertaken three days later on account of spreading infection. The patient died seven days after amputation and eighteen days after the original injury, from septicemia complicated by an acute nephritis.

Case 4.—S. J. had a gunshot wound of the right buttock and the left thigh. Débridement of both wounds was performed. *Streptococcus hemolyticus* was isolated from the wound in the thigh. The blood culture was positive for the same organism ten days after injury and seven days after débridement. The patient died of septicemia thirty-five days after being wounded.

Case 5.—A. A., on admission to this hospital four days after injury, had a perforating gunshot wound of the right leg, 5 cm. below the knee. The entrance was in the popliteal space, 10 by 4 cm. in size. The exit was from the inner surface of the right knee, size of opening 5 by 5 cm. Débridement of both entrance and exit was performed. The wound was then recorded as being in good condition. The wound of entrance was successfully closed by secondary suture seventeen days after incurrence. The wound of exit showed *Streptococcus hemolyticus*. Metastasis to knee joint occurring, this was opened and drained. No treatment was of avail. The patient died of *Streptococcus hemolyticus* septicemia exactly four months after being wounded.

NUMBER OF DAYS IN HOSPITAL

One hundred cases were studied with reference to the time spent in the hospital. Only patients having single penetrating, perforating or lacerating wounds without involvement of the bony structure were included. This was necessitated by the fact that many of the patients with bony involvement were transferred to other hospitals before completion. In this series of cases the average length of time from the incurrence of the wound to admission to hospital was six days. Clinically they all appeared of equal severity when first seen at this hospital. The method of treatment in all cases was that of Carrel and Dakin. Of fifty patients showing on culture *Streptococcus hemolyticus*, the average length of stay in the hospital was seventy-seven days. Of fifty patients not showing this organism on culture, the average length of stay was forty days. No case of gaseous gangrene is included in this series.

SECONDARY SUTURE

One hundred and fifteen secondary sutures were carefully followed. Of twenty-one wounds sutured without a bacteriologic examination, there were fifteen failures, or 71 per cent. The failures in 80 per cent. of these were due to *Streptococcus hemolyticus*. Of ninety-four cases of secondary suture following a negative bacteriologic report, there were two failures and three partial failures, or a total of five (5.3 per cent.). Previous examination had revealed that twenty-two of these harbored the streptococcus, whereas it was absent in seventy-two. There were two partial failures, or 9 per cent., in the first group of twenty-two, i. e., those having previously shown the streptococcus but in which one negative culture for this organism had been obtained. The cause of the partial failure in both cases was the streptococcus. Of the seventy-two cases in the second group there were two failures and one partial failure, a total of 4.1 per cent. One of the failures was due to *B. coli* and the other to a gram-positive, nonmotile, not encapsulated, spore-bearing bacillus (probably *B. oedematiens*). The partial failure was due to a hemolytic staphylococcus.

SUMMARY AND CONCLUSIONS

1. In a series of 1,848 cultures made on 985 consecutive war wounds, *Streptococcus hemolyticus* was isolated in 24 per cent. of the wounds.

2. The clinical appearance of the wound gives no indication as to the probable presence or absence of this organism.

3. The presence of this organism is the chief cause of the failure of secondary suture. Therefore no wound showing a positive culture of *Streptococcus hemolyticus* should be closed.

4. Other considerations being equal, the length of stay in hospital is practically twice as long for wounds showing this organism as for those not showing it.

5. Dakin's solution is of value in clearing up these wounds, but its action is much slower than in wounds of the same clinical character but not showing on culture *Streptococcus hemolyticus*.

MILITARY HOSPITAL MESS MANAGEMENT

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The problems of mess management in the military hospitals are in many respects similar to those in civilian institutions. There are, however, some essentially different conditions encountered in the former which involve corresponding differences in administration. The proportion of men who are practically well and merely waiting for discharge from the hospital is high. These include surgical and other convalescents who in civil life would be sent to their homes, but who are not yet ready for barracks life or for final discharge from the army.

In the military hospitals a high degree of arbitrary control is feasible. A civil hospital is frequently solicitous that life in the institution be made as pleasant as possible for reasons somewhat apart from therapeusis; in military hospitals, on the other hand, such solicitude is neither desired nor desirable. The chief desideratum is to get the patients out of the hospital as soon as possible. Any attitude of making the hospital a haven of peace and rest would be unmilitary. On the other hand, no violation of humanitarian principles would be justified; this would be likely by retarding convalescence to violate the principle just mentioned.

Although there are some variations in details, the general plan of administration of the base and general hospitals is much the same in all. Directly under the commandant is the mess officer, usually either an experienced hotel manager or a former army mess sergeant commissioned in the Sanitary Corps. Associated with him, sometimes under his immediate direction and sometimes immediately under the commandant, is the dietitian. She usually has one or more assistants. The dietitians are for the most part women who have had courses of training in domestic science, but who often have had little or no previous training in hospital work. The mess officer has the assistance of several sergeants who deal with such matters as supplies, accounts, and kitchen and dining room management. Separate messes are typically maintained for sick officers, nurses, enlisted men patients, and hospital corps men. The officers' mess proper and the nurses' mess are usually

quasi-independent institutions in which, however, the mess organization takes a benevolent and cooperating interest.

Problems confronting the mess officer fall into such groups as purchasing, personnel, kitchen management, menus, serving and waste control. Much can be said in favor of centralization in the purchasing, storage and issuing of supplies. This demands, for satisfactory results, adequate central store rooms, an adequate accounting system, a capable stores sergeant and a delivery truck. The advantages are obvious: the ability to get favorable prices on account of purchasing in quantity, and a stability of supply. In hospitals which live on a hand to mouth basis, the failure of a local delivery may at any time upset the smooth working of the mess régime, necessitating a sudden belated revision of the menu. Ordinarily no attempt should be made to "divide the business" among local dealers. Reliable firms should be selected, and so far as feasible patronized. The markets should be carefully watched, however, to make sure that the dealers are giving the best service and prices procurable.

MESS PERSONNEL AND KITCHEN MANAGEMENT

The problems of securing, training and retaining a satisfactory mess personnel are difficult, and few mess officers express themselves as satisfied with results. There is a hoary military tradition that the kitchen is the final resort for disposing of men who are incompetent for any other place in the army. At the same time there is a general realization that kitchen work involves a considerable number of highly specialized tasks which demand high class men for their proper performance. It is also recognized that the smooth functioning of the mess is the most fundamental necessity for successful hospital administration. In practice sometimes one consideration, sometimes the other governs.

The organization of the mess personnel varies within rather wide limits, depending on local conditions. A definite scheme in which the duties of each man are sharply defined is essential to efficiency. A proper delimitation of duties is the first requisite to a good *esprit de corps*. A system of carefully adjusted rewards and punishments is necessary to full cooperation. The man who does his work well should be commended and given a maximum number of passes and whatever other privileges are feasible, while poor work should be as promptly recognized and penalized. Nothing is more demoralizing to the mess personnel than a feeling that "it is not worth while to try."

One of the most common handicaps with which the mess officer has to contend is a constant shifting of personnel; but in the better administered hospitals there is a marked tendency to permit or even to encourage suitable men to specialize in kitchen duty largely to the exclusion of other corps work. The use of the kitchen as a penal institution, although sanctioned by long usage, is one which can in no way be commended. The mess personnel have enough difficulties to meet without any gratuitous duties as disciplinarians. There is no surer way to spread discontent and lower morale in the kitchen than to keep a succession of sullen culprits passing through it.

The use of civilian cooks in the hospital kitchens, while occasionally satisfactory, is seldom so. They are usually seen in the poorer, not the better hospitals. In general they do not fit well into a military régime. They are neither amenable to discipline nor adapted to working smoothly with men who are. They are generally more wasteful than properly trained army cooks, and are less inclined to meet proper sanitary requirements.

There remains to be emphasized the necessity of first class sergeants in charge of the various kitchens and dining rooms. An adequate number of these is a paying investment, even from the financial point of view. An insufficient number of sergeants almost invariably means poor management, with wastage high, activities confused, and policing poor.

DIET FOR THE INDIVIDUAL

In theory, at any rate, dietetics is a phase of therapeutics, and each soldier in the hospital should receive the particular diet best adapted to his case, just as he should receive individual therapeusis in other respects. Practically, however, conditions have not permitted any very close approximation to this ideal. It is true that occasionally special diets are encountered, most frequently in gastro-enterologic wards; but for the most part conventional "liquids," "lights" and "regulars" are provided for the men in large groups, with in some cases "softs" interposed between the "liquids" and "lights," especially for the surgical convalescents. This is not an ideal state of affairs, but under existing conditions is probably as satisfactory as can be hoped for. The problem, then, resolves itself into one of best utilizing this system for securing for each patient the diet best suited to his individual needs. Exclusive of nurses and officers, there are from a dietetic point of view at least eight classes of individuals to be dealt with. These are:

1. Normal men at fairly active work and needing approximately 3,600 calories of ordinary food.

2. Normal men at sedentary work, needing approximately 3,200 calories of the same sort of food as Class 1.

3. Convalescent patients, metabolically normal, walking about in the wards and corridors (surgical patients and the like), requiring approximately 2,600 calories; aside from a rather low caloric content, there are no special indications to be met in the diet of this class.

4. Bed patients, metabolically normal, requiring approximately 2,000 calories. This class comprises a considerable number further referred to in Group 7. The low caloric demand is the outstanding feature in this class.

5. Subacute febrile patients (empyemas especially) needing high caloric and high protein feeding. Experience at Camp Lee has shown that there is in such cases a constant drain on the body nitrogen. Convalescence is materially hastened by recognizing this drain and meeting it as well as the need for an augmented quantity of energy food. In this connection it may be pointed out that protein food is in itself a stimulant, and within the limits of digestive efficiency high protein feeding can take the place of or supplement therapeusis directed toward general stimulation of the body cells.

6. In this class may be included a considerable variety of patients who are not sufficiently ill to require special diets, but whose convalescence could be hastened by careful attention to their dietaries. They include convalescents from pneumonia, etc., who need a fairly generous diet but who, from lack of appetite, eat but sparingly. These should receive a diet planned especially for attractiveness and high caloric content rather than the regular diet, even though supplemented by feeding between meals.

7. For that class of patients who are troubled with constipation when not actively exercising, a diet including especially laxative components should be provided. Rather than establishing a special laxative diet for this type of patients, however, the situation could be met fairly well by deliberately making the diets of all "regular" patients laxative. The

routine use of cathartics in a hospital is a reflection on the dietitian.

8. There is, of course, a special group of diseases, such as nephritis, diabetes, cardiovascular diseases, gastro-intestinal disorders, acute surgical cases, etc., which by general consent must be treated by special dietary therapeusis. The problem of meeting the needs of these patients does not ordinarily confront the mess administration, as such diets usually are and should be prescribed by the surgeons in charge, the mess personnel acting in a capacity strictly analogous to that of the hospital pharmacist.

PREPARATION OF THE MENU

The mere enumeration of these classes indicates the necessity of a variety of menus. In few hospitals is there sufficient differentiation. Perhaps the most frequent source of dietetic blunders is an attempt to feed the hospital corps men and patients together. In such cases practically always one class or the other is improperly fed. Even patients who are essentially normal are engaged in highly sedentary occupations and should be treated accordingly. The "regular" meals usually are sent to a considerable number of borderline cases. Among these are men whose digestive capacity is not equal to unlimited demands. There should, therefore, be a definite forbidden list which includes corned beef and cabbage, sauerkraut, fried bologna, and other sophisticated meats, fried cabbage, pickled pigs' feet, and other such indigestibles. All of these have been encountered in the patients' "regular diet" at one hospital or another. They should have no place in an institution where they are likely to reach men who may be harmed by them.

In some hospitals, physical conditions make it difficult to segregate patients and corps men. If the same kitchen and dining room are used for the two groups, they should be fed at different times and with differential menus. These are compiled with certain dishes, such as roast beef and potatoes, to be served to both groups. To patients whose caloric requirements are low, "light" vegetables—creamed celery, for instance—and "light" desserts are served; for the corps men whose requirements are high, such "concentrates" as beans, rice and bread pudding, are added to the meat and potatoes. Any competent dietitian can apply this system at length.

Military patients generally want to eat to repletion. They may be allowed to do so if the menus are properly designed. But appetite cannot be relied on for adequate regulation of consumption. Many eat merely for amusement. Feeding a man 3,600 calories, however, when he needs only 1,800 calories, is to waste food inexcusably. The menus should be so planned that food of bulk to fill an ordinary stomach will furnish only the proper number of calories. Stewed and fresh fruits, and the coarse vegetables should be utilized freely. The statement that "the men will not eat turnips, etc.," merely means that the hospital cooks are incompetent. The coarse vegetables are eaten with relish when properly prepared. In some hospitals the training of cooks is only half done. They should all have a "postgraduate" course in "cookery for the sick" to be given by the dietitian, such as the "diet cooks" usually have had.

Bed patients and ambulant patients cannot properly be fed the same meals. In some hospitals all bed patients except those on forced feeding receive the "light" diets. If the menus are properly written, this is a good practice.

The subacute febrile patients and convalescents mentioned in Class 6 should have menus planned especially for attractiveness, utilizing the greatest feasible number of "concentrates," such as ice cream, lima bean purée, lactose custard, etc. A common plan is to give these patients the "regular" diet supplemented by feeding between meals. This is at best a makeshift device. The planning, preparing and serving of such meals should be under the supervision of skilled dietitians. The situation presents problems that will tax both the scientific knowledge and culinary skill of the best of these.

Much useless expenditure of mental energy occurs in hospitals where new menus are worked out every day. A standardized set can be devised and used repeatedly. The individual menus, however, should not be repeated oftener than once in ten days. A regular weekly sequence of meals soon becomes very distasteful to those patients who are in the hospital for relatively long periods. When the interval is ten days, however, few detect the repetition. To insure wide utility, the basic items should be printed in heavy type, with substitutes indicated in smaller type, as in the accompanying dinner menu.

DINNER

TOMATO SOUP	**SPINACH**
Okra soup	Kale
Vegetable soup	Cauliflower
ROAST BEEF	Cole slaw
Mutton	**RAISIN PIE**
POTATOES	Bread pudding
Sweet potatoes	Rice pudding
BREAD	**COFFEE**
Corn bread	Tea
BUTTER	
Gravy	

The provision for substitutes makes the system elastic so that the menus can be adapted to seasonal and special conditions. Since the work does not have to be frequently repeated, it is practicable and desirable to indicate on the menus the amount of protein and the caloric value of standard servings of each item. To determine approximately the caloric and protein consumption of any patient or any ward becomes then a matter of simple arithmetic.

The practice in vogue in some hospitals of leaving the menu writing to the mess sergeants is scarcely defensible. These men are practically always incompetent to meet the special technical problems involved. The same may be said of men who have had only ordinary medical training. It is unfortunate but true that dietetics in the ordinary medical curriculum receives but scant consideration. Neither does experience in managing hotels fit one to prescribe diets for hospital patients. Hotel diets are better adapted to putting men in hospitals than to getting them out. Special knowledge of the theory of nutrition, the art of cooking, and of dietary therapeusis are needed. The best method of meeting the problem is to place the supervision of nutritional affairs in the hands of a surgeon well versed in the theory and practice of dietetics. But in most hospitals no such man is available. The next best plan is to place a good dietitian in charge both of compiling the menus and of supervising the preparation of food for all the patients.

METHODS OF SERVING AND THE ELIMINATION OF WASTE

There remain to be considered the problems of serving and the closely related problems of waste control. Food waste in the military hospitals has been observed to vary widely—from 0.4 ounce to approximately 2

pounds per man per day. The problem of controlling waste amounts to one of preparing the food properly and compelling all soldiers to refrain individually from wasting: low wastage follows from good cookery and good discipline. As an added factor, a certain amount of instruction in the best technic of serving is advisable.

Much unprofitable discussion has been devoted to the question of whether cafeteria line service or table service is better. By either system waste can be kept down to an insignificant amount, and very high waste has been seen under each. In this respect there is very little actual choice between the systems; but as a matter of maintaining a pleasant atmosphere in the dining room, skilfully administered table service is distinctly the better.

A common source of waste is the kitchen itself. Carelessness on the part of the cooks may result in spilling or burning foods. In hospitals where this occurs more than rarely the assessment of the wastage against the pay of the culprit, or in case he is not known, against the pay of the sergeant in charge, has a salutary effect approaching 100 per cent. in efficiency.

Careless peeling of vegetables, and especially of potatoes in the final stage after they have been through the peeling machine, is often encountered. The eyes have to be removed by hand; instead of using the point of the knife and removing a small bit, the common custom is to cut off a tangential slice thick enough to include all the eye. For such vegetables as carrots, and in hospitals that do not have a peeling machine for potatoes, curved (semicylindric) knives should be provided. Allowing bone to leave the kitchen before going through the stock pot is another source of waste, although one not frequently encountered. Using fat trimmings or rendered fat to stimulate a slow fire is an extravagant method in use by some cooks. This should be strictly forbidden. The fat should be used in the cooking to as great an extent as possible; any not thus used should be sold, preferably for food elsewhere. The use of good food fat for soap, as has been practiced in some institutions, is a "conservation" measure of dubious value. A skilful use of "leftovers" is essential to satisfactory kitchen economy. If the quantity in any given case is too small to serve as part of a dish for the whole mess, "side dishes" should be made for a few only. The leftovers, to insure palatability, should be "worked up" at once rather than allowed to accumulate.

Assuming that good food has been provided and properly cooked, the methods of serving play the predominant rôle in encouraging or discouraging waste. In case the cafeteria line service is used, alert, intelligent men should be placed in charge of the dispensing. They should not be allowed to forget that their efficiency is an important factor in the success of the service. Each man in the line, as he presents his plate, should be given an option as to whether or not he shall receive any particular viand. In all cases relatively small initial helpings should be served and dependence placed on rehelpings ("seconds") to insure that the men get as much food as they need. Bread should be cut in half slices, a half inch thick, and the men given an option as to how many of these shall be taken. In view of the wide variability of bread consumption by different individuals, it would be better in all cases to put the bread at least on the tables and allow the men to help themselves. Some mess officers do not favor the plan of serving half slices, on the ground that even with whole slices the bread wastage is low. They overlook the fact that when whole slices are served, many men will eat more bread than they want in order to get the small quantity they do desire. The waste is just as great when a man overeats as when he empties food into the garbage can.

The next necessity is the "clean plate" rule: "Take all you want, eat all you take." This does not apply to the inedible portion, but the so-called inedible portion is subject to some control. Fat should not be considered inedible. The man who does not care for fat should not have it put on his plate. Proper carving and proper serving meet this difficulty. In enforcing the "clean plate" rule, two factors are important. Better results are obtained when both cheerful cooperation of the men and good discipline are brought to bear. When a man understands that the amount of food in the world is very inadequate and that what he wastes some one else who needs it has to go without, he is generally willing to be careful. When human beings are starving to death by the thousands, food waste becomes a crime. This fact should be emphasized rather than the money saving idea. The soldier is not particularly impressed by appeals to save money for the government and thus keep down taxes. Good discipline, however, is also necessary for the ignorant, the vicious or the careless. The simplest and most effective method is to place a good sergeant in charge of the dining room and require him to see that all edible food is eaten.

By these methods edible waste can be kept below a half ounce per capita daily.

When table service is used, the same general methods apply. The essentials are good food, well cooked and properly served to well disciplined men. With table service the "food hog" may offer a special problem. He is the man who takes the most and the best of the dessert or of the meat without regard to the rights of his neighbors. This difficulty is usually seen in hospitals where discipline is slack. It is generally best to deal with each man directly and not let the habit spread. If the mess, however, has got out of hand, squad service should be established; that is, the men come to the dining room in small groups in charge of squad leaders, preferably noncommissioned officers, who are held personally responsible for proper service and for wastage.

A combination of table and line service in some situations is the most satisfactory, the meat and dessert being served to the men directly, and beverages, soup, bread and vegetables placed on the tables.

Cream and sugar for beverages should also be placed on the tables. No man can properly sweeten another man's coffee. The consumption of sugar is usually higher when the men help themselves, but not greatly so. At Camp Jackson it was found in line organizations to require 0.063 pound more per man per day when the sugar was placed on the tables. This adds about one-half cent to the daily ration cost. Attempts to save sugar in the mess generally result merely in the men's buying more candy at the canteen. Another phase of the problem is that sugar may be left undissolved in the bottom of the cups. Good discipline meets this difficulty easily. If the men get careless, penalize them by sugarless days. An occasional sporadic case may best be dealt with individually. For sanitary reasons it is best to use some sort of container from which sugar is poured instead of dipped. These

can be obtained from the hotel supply trade, or can be improvised from baking powder cans by cutting a hole a half-inch in diameter in one side near the top of the can.

As to "cream," if, as is usually the case, condensed milk is served, there is no legitimate objection to its being used in beverages as freely as desired. Many patients do not get enough milk for their own good. Milk is the best source of calcium and certain vitamins. At least 4 ounces of condensed milk or 8 ounces of fresh milk should be used per man daily.

The most important source of waste in some hospitals is one that is hardly even suspected, that is, waste due to overconsumption of "concentrates." A large stomach full of roast pork, mashed potato, gravy, lima beans and raisin pie is for a hospital patient a very wasteful meal. The man who needs only 2,000 to 2,500 calories may and frequently does eat 4,000. This excess is truly waste and is also detrimental to the patient himself. Many mess officers are unduly impressed by the wishes of the men for a heavy meat diet. In addition to retarding convalescence, this is expensive. The food is a part of the treatment. The aim should be to cure and discharge the patient, not to render him unduly happy and contented.

WARD SERVICE

The foregoing principles can be applied in theory and largely in practice to ward service. The food should reach the wards in an attractive condition and should then be served to the patients without deterioration. Hot viands should be served *hot*, and cold *cold*. This does away at the start with an important cause of wastage. When to a patient whose appetite is capricious at best an unattractive, lukewarm conglomerate of lumpy mashed potato, stewed tomato and hash is served, there will be a great deal of garbage.

A high degree of individualized service is feasible. When physical and sanitary conditons permit, the food carts should be taken into the wards and each patient served individually. When this is not feasible, the food can be passed in the containers and the patients served directly. For that class of patients who need forced feeding but whose appetite is capricious, this system should not be used. Such patients should have meals prepared and served with special attention to attractiveness. To them the sight and smell of large quantities of food are often highly distasteful and may seriously interfere with nutrition, and hence prolong convalescence.

The first helpings should be small, such as the least rather than the most hungry man will want. These can be supplemented by rehelpings to any desired extent. In every case, bread in half slices, cream, sugar, salt and pepper should be passed separately. Generally there is nothing except ignorance or indolence to prevent a service so well adapted to individual patients that ward waste drops to a low figure. If the serving is properly done, the "clean plate" rule can be enforced to nearly as great an extent in the wards as in the dining rooms.

Ward serving needs especial supervision. Many nurses and attendants, if left to themselves, adopt the easiest way. An officer or dietitian should be placed in charge. Frequent inspections of the serving in each ward should be made. Any serious defects encountered should ordinarily be taken up with the ward surgeon who is primarily responsible for ward conditions.

All leftovers should be kept clean, and except in the case of contagious wards, should be returned to the kitchen. Allowing ward attendants or convalescent patients to stuff themselves with attractive leftovers is a fairly common practice, but one in which the involved waste is merely concealed.

The ward personnel should not be allowed to make surreptitious use of delicacies ordered ostensibly for the patients. Unless care is taken to prevent it, there may be a considerable waste of such materials as fruit juices, milk, cream and eggs. The rule should be adopted—and enforced—that no food or beverages except water be consumed in the wards by any one other than the patients at any time. Frequent check should be made on the amount of special commodities sent to the wards, and the issue of special meals or delicacies should be restricted to legitimate demands. A *laissez faire* policy along this line inevitably leads to abuses.

In supplying food to the contagious wards, special effort should be made to send only such quantities as are likely to be needed, since leftovers from these wards should not be returned to the kitchen.

In the larger hospitals in which there is frequent changing of the population in the wards, special methods are needed to keep the mess officer apprised of the dietary needs of each. The standard plan of requisitioning once daily is inadequate. At least supplementary reports of transfers and discharges from the wards are needed. In some hospitals, confusion would be lessened by systematically requisitioning about an hour before each meal. In one hospital studied, all meals sent to the wards in excess of the actual number of patients were charged to the surgeon at 25 cents each. The method seemed to be as effective as it was unpopular.

In some of the best hospitals, intramural publicity has been used effectively to keep down waste. The amount from each ward and each kitchen is weighed separately and recorded. Reduced to a per capita basis, it is then reported. The surgeon in charge of each ward, or the sergeant in charge of each kitchen, the waste of which is higher than the average, should be notified of that fact and urged to reduce it below the average. Each man thus in improving his own record aids in lowering the general average. This procedure, carried out for a few weeks, has been found materially to lower the garbage output.

SUCCESS UNDER DIFFICULTIES

Perhaps in no part of the military establishment has the attempt to spring to arms over night resulted in more trying conditions than in the hospital kitchens. Very few cooks, almost no mess officers with adequate technical training, and at first no dietitians were available. When the need became recognized, a considerable number of hotel managers patriotically offered their services, and they have done an invaluable work. A few well trained hospital mess sergeants were also available for promotion to commissions and also have been very valuable. More recently dietitians have come to play a large part in hospital messing. They have introduced technical skill in adapting dietaries to the nutritive requirements of the hospital population and have added an element of finish to the diets which have very materially improved conditions. Their lack of a definite military status has made large demands at times on their tact, and their success is so much the more to be admired.

EMPLOYMENT OF CALIPERS IN FRACTURES OF THE FEMUR

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In view of the extensive use to which the caliper has come, as introduced into general practice by Lieutenant-Colonel Besley, U. S. Army, I think it may be useful to put forward some observations in regard to the many points that have arisen. These observations

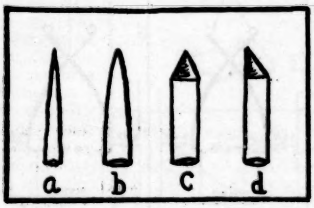

Fig. 1.—Various shapes of caliper points: *a*, long, thin and tapering; *b*, long, thick and tapering; *c*, short taper, concentric point; *d*, short taper, eccentric point.

are based on the study of about 300 cases, which I have been able to follow closely during the past year, and the casual observation of many others.

It is my belief that in this instrument we have realized one of the benefits that go to justify the sacrifices made by so many splendid heroes. However, it can be misused, misapplied and abused. The outstanding virtue of the instrument lies in the fact that a direct force can be applied to the bone without damaging it and without penetrating its cortex. Penetration of the cortex means misuse of the instrument or some fault in construction.

The dictum of Thomas in regard to his splint applies equally to the caliper: "Do not try to modify the Thomas splint until you understand the use of the Thomas splint." Thus, as with so many Thomas modifications, we find the modified caliper inferior, as a rule, to the original.

PENETRATION

The question of penetration of the cortex depends on many factors. Chief among them is the actual shape of the caliper points. The point that is sharp and of a long, thin taper is the worst type. It presents a spearhead to the bone and is so constructed as to penetrate the maximum depth with a minimum pressure (Fig. 1). The relative length of the handle arm compared to the gripping arm is important. The longer the handle arm, the greater is the leverage in favor of penetration; and, on the other hand, the shorter the handle arm, the greater the likelihood of slipping due to insufficient grip.

In addition to the length of the handle arms, their pitch bears on the question of leverage; thus, a caliper whose handle arms diverge markedly gives greater leverage in favor of penetration than one in which the handle arms lie closer together (Fig. 2).

The arrangement of the cords at the handle ends has much to do with the grip pressure and therefore is important in considering the cause of penetration. The diagrams given in Figure 3 illustrate this and are the results of careful experiments. The force applied was in each case constant—8 kilograms—and acted in the long axis of the calipers. It was counterbalanced, but the lateral (grip) pressure was balanced by spring balances acting right and left from a fixed point to the respective arm. It will be seen that the grip pressure varied considerably and that the less the grip pressure the greater the spread of the points. From the series of experiments showing the variation in grip pressure with different spreads of the points (Fig. 4) it will be seen that with a constant type of cord fastening, the greater the spread the greater the grip pressure. Thus it follows that the influence on grip pressure of the type of cord fastening is even greater than appears in Figure 3. The pull as taken in Figure 3 *e* exerts sufficient grip pressure to prevent slipping, provided the handle arms are prevented from moving outward by a tie between the handle arms. Figure 5 shows the influence of an eccentric pull on grip pressure and also the rotation and sluing tendency produced by an eccentric pull. Figure 5 *d* shows that with eccentric traction the greater pull is exerted on the same side from which it is taken, not on the same solid crossed arm.

The position on the femur in which calipers are applied is important also regarding penetration. If the caliper is applied on the flat tuberosities of the condyles, where the cortex is thin and comparatively soft, the tendency is to facilitate penetration, while the higher on the shaft one goes, the harder, thicker and more like ivory the cortex becomes. On the sloping surface just above the condyles the surface of the bone is rough and not glazed, but very hard and thicker than directly over the condyles. Here is the place where a grip can be most easily obtained with the least inward pressure, for two reasons: The surface presented is almost at right angles to the direction of the caliper points, and it is rough and hard. It has

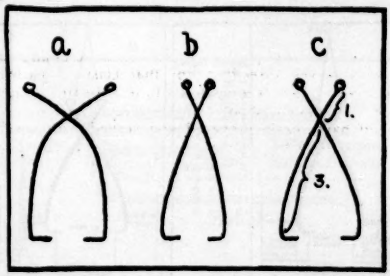

Fig. 2.—Length and pitch of handle arms: *a*, long, with obtuse angle; *b*, short, with very acute angle; *c*, good proportions, with acute angle and a leverage of 1:3.

the disadvantage of not being so near the skin as the tuberosities of the condyles; but to counteract this it has the advantage of not being directly beneath the ligamentous bands passing from the thigh to the leg, namely, the iliotibial band and the tendons of the long adductors and sartorius. Major Pearson has shown that these structures, when the knee is moved, tend to drag on the caliper points and may thus cause erosion and penetration.

In my experience it has never been necessary to bore small holes in the bone to receive the caliper points. This, it seems, tends to render penetration of the cortex

more easy, since the most resistant part of the bone is the very outermost layer of the cortex. Boring this, then, gives the caliper point an excellent start and for this reason should not be done. Captain Preston advocates tapping the caliper points gently a little way into the cortex. However, by pushing with the hands the points will find sufficient grip to hold any necessary pull without slipping, provided other factors are eliminated.

feels like an integral part of the man who wears it. If weight and pulley extension can be made to produce 1 cm. of lengthening (over the normal leg) inside of a week, and then a tie-on fixed extension is substituted, with the ring of Thomas slung so that it hangs an inch above the mattress, the calipers are comfortable always.

One should remember, as Sir Robert Jones has pointed out, that as long as the muscles must be on

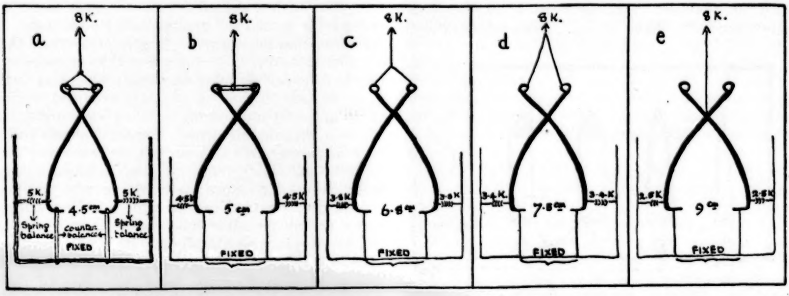

Fig. 3.—Changes in grip pressure due to various arrangements of cords at the handle ends.

JOGGLING

To my mind the most important factor causing penetration is joggling. By this is meant the constant vibration which must be transmitted over the pulleys from the weights and which is instigated by the body tone and movement to and fro. Gross movement is not referred to but a constant, fine, vibratory joggle; and its action is comparable to that of a convict trying to bore a hole through a brick wall with a nail. If he

guard against movement in the fracture, they will not relax. This applies to all weight and pulley extension since there is a constant possibility of sudden jars with each bodily movement. When the patient is put on fixed extension, this possibility is removed and the muscles relax and one can see them do so. This being the case, the pull on the caliper points becomes negligible, and thus a factor in favor of penetration is removed. I do not advocate a tie-on extension until

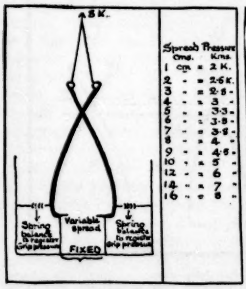

Fig. 4.—Variation in grip pressure with different spreads of the points.

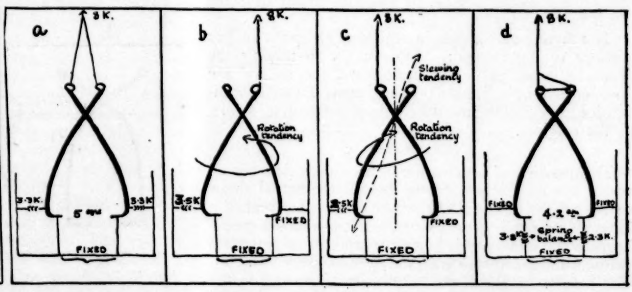

Fig. 5.—Influence of an eccentric pull on grip pressure and also the rotation and sluing tendency produced by an eccentric pull.

simply presses the nail against a brick, little or no result will follow; but if he joggles the nail or twirls it, he soon penetrates the brick. In the bones no rarefication occurs about a sterile screw or nail driven in and stationary; but if there is movement against it, it rarefies a space about itself. One finds that 90 per cent. of the calipers that cause discomfort have eroded a space about their points; and thinking back from this, it follows that joggling is at the root of the evil, generally combined with some other error. The caliper that does not erode or slip causes no discomfort and

the limb is overlength which, with calipers in an early case, should not be more than a week and may be facilitated by the simple means of a ratchet on the weight and pulley made by having a knot in the cord about 6 inches proximal to the end of the Thomas splint. From this knot a cord is carried over the end of the splint and back to the knot twice, where it is tied (Fig. 7). Each day, as the weight and pulley gain a little length at the fracture, this ratchet cord is retied, thus holding by fixed extension any gain that may have been obtained by weight and pulley (Fig. 7). It

detracts nothing from the efficiency of the weight and pulley, and it is very valuable in practice.

In order further to reduce the possibility of joggling, it is advisable at the time of application to tie the handle ends of the caliper together with a cord which passes through each eyelet twice, since it can then be drawn tighter. This then prevents any outward movement of the gripping points, so that they cannot loosen their grip if the weights are bumped against, lifted or jolted, either grossly or minutely. The grip of a caliper depends for its evenness and efficiency on a perfectly steady pull. Any variation of the pull, no matter how slight, means a variation of the grip pressure, and this is joggling and means erosion and pain, or penetration, or both.

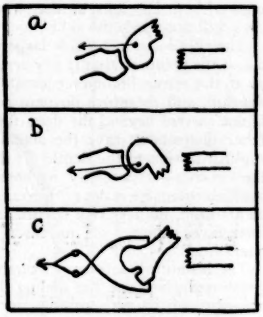

Fig. 6.—Results of applying calipers at different points; *a*, overelevation of lower fragment; *b*, depression of lower fragment; *c*, adduction of lower fragment.

CHECK APPLIANCES

To my mind the important points to be borne in mind in the prevention of penetration are: (1) a short, broad, tapering point; (2) the prevention of minute joggling; (3) application to the hard part of the bone; (4) low leverage (short handle ends not diverging too much), and (5) check appliances. There are several appliances in use at present to check penetration by putting a stop between the handle ends of the calipers. The theory is, that if a block is put there, the gripping points are prevented from coming closer to each other. This is true; but this in itself does not prevent one point from penetrating while the opposite point is pushed away from the bone and thus slips. I have seen this happen frequently when long, sharp, tapering points were used (Fig. 8).

The check caliper as designed by Major Pearson is an improvement on the old method of putting a block of wood between the handle ends. He employs a screw which can be set only to check approximation of the points at any width. I find that a screw locking both approximation and spreading is more satisfactory (Fig. 10.) The points which tend least to penetrate and yet always grip firmly are such that they present progressively a blunter end the nearer together they come (Fig. 1 *d*). The point tapers quickly from the full diameter of the gripping arm to a sharp point. The entire taper is on the side away from the direction of the pull. This leaves a broad surface to present to the bone and permits only of a tiny grip, but one which will not slip and which, owing to its breadth, resists dragging.

The question of the corroding of points and consequent slipping does not apply to short, heavy points, for it will take months for a heavy point to corrode off, since it must be a peripheral corroding equal all around. The narrow, long point corrodes at a place about one-sixteenth inch from the actual point, which then suddenly breaks off and the caliper slips. This objection can be met by making the points of rustless steel, which, however, does not prevent a long, sharp point from penetrating. The ordinary Besley caliper with points corrected by filing and with the handle ends tied together with cord (the pull being taken from a separate cord and not from the cross cord) will perform its function quite satisfactorily. There is, however, the objection to them all that the knee cannot be fully extended without the caliper arch impinging on the tibial crest, which then becomes a fulcrum, levering the caliper points upward and thus causing dragging on soft parts and periosteum (Fig. 9 *a*).

Thus, when the splint is removed and union is firm, the knee cannot be fully extended, and often for a long time after the patient walks, he must take the weight in the slightly flexed position, which means a weak leg and a limp. It also delays the use of an ambulatory while the knee is being straightened. Further, all the time the patient has been lying in bed, his quadriceps has been on the stretch disproportionately to the rest of his muscles, and a certain amount of tone is thereby lost which sometimes is never regained. Then, too, the pad of fat beneath the ligamentum patellae and the deposit of fat in the ligamentum mucosum increase in size markedly toward the end of convalescence and, since the knee has been in the flexed position, offer resistance to straightening.

I do not think that these things outweigh the tremendous advantages which the caliper gives us in length, position, early union, early clearing up of sepsis, decreased number of cases of acute medullary osteomyelitis, stiffness and stiff ankles, and pressure paralyses of the external popliteal nerve. Nevertheless, this is a disadvantage. This drawback has been met by designing a caliper which permits the pull to be taken from the sides so that the caliper can be in an upright position, and from buttons on the side cords lead along the leg to the distal end of the splint. Thus the caliper arch will never impinge on the tibial crest, and the knee can be fully extended (Fig. 9 *b*).

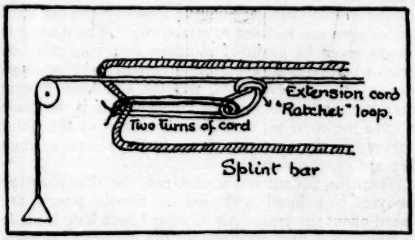

Fig. 7.—Ratchet arrangement.

This caliper has many advantages over the old Besley model, but has the objection of expense. The distance between the points is controlled in both directions by a screw which passes through the body of the caliper and locks it (Fig. 10). It is fixed rigidly to the bone so that no joggling can occur, there is no tendency to progressive penetration, and its points are broad and short. I find it perfectly comfortable and efficient, permitting full motion in the knee. It can be applied to the tuberosities of the condyles, since it will not penetrate even this thin cortex, and thus has the advantage of being subcutaneous and more safely applied.

By safely I mean that the synovial landmarks are more definite, while with the higher application, the subcrural pouch, especially on the external side, stands in danger of being penetrated. For special supracondylar fractures the same caliper equipped with double points, such as I have used since March, 1918, and a side arm as suggested by Captain Kilner, for controlling elevation or depression, can be used with advantage.

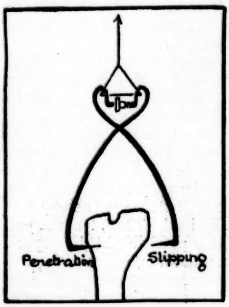

Fig. 8.—Check appliance between handles that does not prevent penetration and slipping.

The causes of pain in caliper points in my experience are: (1) motion of the calipers in relation to the bone, and (2) edema and consequent pressure surrounding the points, being either periosteal or subcutaneous. The first occasions 90 per cent. of the discomfort I have seen. The second, which may depend on the first, being due to the presence of an irritating, joggling foreign body, calling out a leukocytosis which is sterile, occasions the most severe pain and is the cause of most of the caliper failures. I have never seen pain after the first forty-eight hours from a caliper which could not move or joggle in relation to the bone. One often finds penetration of the cortex associated with pain, both probably attributable to motion.

A SATISFACTORY METHOD OF APPLYING CALIPERS

According to a method of applying calipers that I have found very satisfactory, the skin is cleaned for twenty-four hours beforehand with alcohol. It is unnecessary to move the patient from his bed. I prefer chloroform or ether anesthesia, although nitrous oxid and oxygen can be used satisfactorily. The patient is always given ¼ grain of morphin and $\frac{1}{100}$ grain of atropin beforehand. While the patient is being anesthetized, the pulleys, cord, weights and knee flexion piece are made ready by an assistant. It is desirable to have the condyles well above the level of the splint bars rather than sagging down in the slings, as then they are more accessible.

When the patient is anesthetized, the skin over the condyles is painted with iodin. Sterile towels are placed about the knee. An incision 1 inch long is made longitudinally just proximal to the adductor tubercle and carried only down to, and not through, the deep fascia. This is packed with gauze to control all oozing, and then directly at right angles to the line of the tibia the opposite incision is made in the same way, on the outer side of the knee. When perfectly dry, both incisions are rubbed thoroughly with bismuth iodoform petrolatum paste and the caliper points pushed through the fascia and deep tissue to the bone. It is wise to scratch the periosteum from a small area with each point before making them firm. This does away with all pressure on the periosteum, which is very sensitive, and prevents the collection of serum beneath it, thus obviating the most usual cause of aching at the caliper points. To make the caliper firm I press hard with the heel of each hand against the gripping arms until I feel them bite into the cortex. An assistant then passes a cord through the eyelets twice and ties very tightly so that the caliper is prevented from releasing its grip. A dry gauze dressing is then applied, being carefully packed into the incisions so that no serum shall remain to become a source of leukocytosis. The points should be inserted through the most proximal ends of both incisions, so that when the pull is put on they will not touch the skin edge, which is sensitive.

The skin incision is made larger than is necessary to admit the points so that if any serum accumulates later or if the tissue becomes edematous, no pressure can develop, and therefore no pain results. The incision is not carried beyond the deep fascia because then no other instrument, save the actual calipers, can carry slight infection to the depths of the wound. Further, there being no necessity to bore into the bone, no avoidable damage is done. Certainly, the fewer instruments used, the less risk is run, and since the calipers themselves suffice, I see no reason for complicating the operation.

The bismuth iodoform petrolatum paste is merely a fetish and gives one the feeling that no infection can pass through its antiseptic barrier. It seems to leave the points of application drier and less edematous than other antiseptics seem to do.

The screw-locking caliper described above is applied in the same way except that it is screwed home instead of being pushed, and is applied to the flat surfaces of the condyles, not proximally to them.

As regards the point of application of calipers, the fracture itself is an important factor in deciding the exact point of application. For instance, in supra-

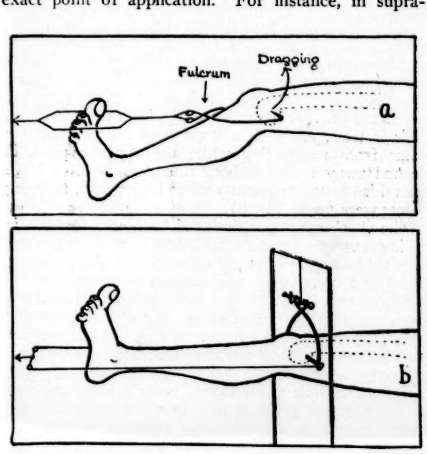

Fig. 9.—Action of calipers in horizontal (*a*) and vertical (*b*) positions.

condylar fractures, the point of application is of the utmost importance. If one applies calipers in a position relatively anterior on the tuberosities of the condyles, the application of force in a direction parallel to the femur tends to overelevate the lower fragment (Fig. 6 *a*). If one applies them in a posterior position, the reverse is the case and they tend farther to depress the lower fragment (Fig. 6 *b*). If one applies the inner

point more proximally than the outer point, the lower fragment will be adducted and the calpiers will pull mostly on the more proximal point, which will then tend to penetrate and slip (Fig. 6 *c*). If one applies the outer point more proximally, the reverse is the case. Both points, when one desires a straight pull, must be applied on either end of a line drawn at right angles to the line of the tibia. This line represents the axis of the femur, although its shaft inclines from this line. This inclination is compensated for by the offset head. If the inner point is applied in an anterior position and the outer in a posterior position, there seems to be only a slight tendency to produce rotation inward. This screw-power for rotation can be increased by using a double cord instead of the single one. letting each cord wrap around the splint bars.

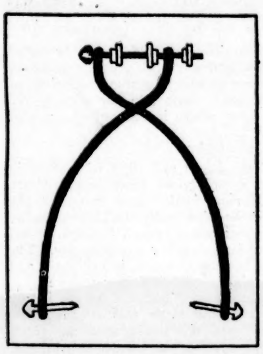

Fig. 10.—A screw that locks the caliper.

Any of these facts may be turned to advantage in correcting malalinement, or may be abused in ignorance. Figure 11 shows the available surface for caliper application. It is always safe to apply the points on the most prominent points of the condyles. These are never covered by synovia. However, before attempting to apply calipers to any other spots, one should study the synovia, the course of the anastomotica magna artery, the external popliteal nerve, and the functions of the various ligaments around the part, as well as the cortex of the bone.

The direction of the pull is important, and much may depend on it. The rule is to pull in the long axis of the bone. Departure from the rule may be advisable only in exceptional cases and after due consideration. If one has properly applied calipers the rule need never be departed from.

The amount of pull will vary according to the shortening to be overcome, the strength of the musculature, the age and site of the fracture, the amount of swelling, the tenseness of the deep fascia, and the degree of infection. It is my custom to apply 15 pounds directly.

If this promises, after twenty-four hours, to stretch the fractures sufficiently, it is enough. If it seems not to perform its function, which can be from ¼ to 2 inches per day, it is increased to 20 pounds, which is sufficient to stretch almost any fracture full length, provided the apparatus is correct. One need not hesitate to use 25 pounds, or even 30 pounds for a few days, and often forcible reduction under an anesthetic may be resorted to. If the extra weight causes periosteal pain, it can be reduced. One finds that 10 pounds is the least that avails fully, although others can get results with only 5 pounds, I am told. However, one aims to get a little overlength inside a week and thereafter to hold this gain by tie-on fixed extension, which in reality takes very little pull once overlength is accomplished.

The calipers will probably cause discomfort and even pain for the first forty-eight hours. During this time morphin should be given freely, since then the patient lies still and gives the points a chance to settle down. The weights, too, can do more efficient work. If morphin is withheld during this early stage, the patient is restless, and every movement only further irritates his fresh wound. Later on, after three or four weeks, one may find the points again causing pain. This will usually be a throbbing and is due to a sterile leukocytosis and edema about the points. A course of fomentation over the whole front of the knee region, especially applied at night, will soon ease this and dispel the edema. This pain is usually due to some slight erosion and should not occur with well applied and correct calipers. However, one's early cases will show these things, and occasionally a patient whose calipers are perfectly applied will complain. Relief can be given sometimes by running the needle of a hypodermic syringe along the caliper point and squirting a small amount of 2 per cent. cocain around the point. A tiny pinch of powdered procain applied as a dressing to the caliper points is often very efficient. Whenever any serum appears about the points, they should be washed and dressed with eusol or some mild lotion. Sometimes temporary reduction of the weight may give permanent relief, so that it may be all reapplied comfortably. Under no circumstances should all the weight be removed or lifted, as then the caliper grip lets go and the caliper will surely slip. This applies only to the old nonlocking model. Sometimes the weight can be divided, and part applied through an adhesive extension to the leg, while the caliper pull is reduced. If all attempts to relieve pain fail, the calipers may be reapplied through fresh incisions at a little distance from the old ones and preferably above them. No case of sepsis has been seen in more than 300 cases which amounted to more than slight local inflammation. The knee joint has not been involved. Twice the anastomotica magna artery has been ruptured with the development of small aneurysms necessitating ligation of that artery.

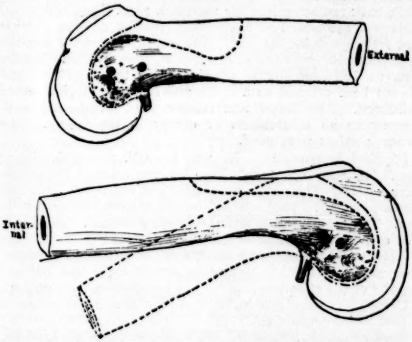

Fig. 11.—Available surface for application of calipers.

The caliper is, of course, applicable to other bones than the femur. My experience is largely confined to its use on the femur alone, although on several occa-

sions, in the treatment of fractures of the femur, I have used it on the lower ends of the tibia and fibula, the tibial tubercle and os calcis with good result.

As regards sinuses resulting from the use of calipers, it seems that they occur only when the medulla has been penetrated; and when calipers of proper construction and intelligent application have been used, the tiny incision seals in a few hours after the calipers have been removed, and in a week it is healed and stays healed. The scar is not painful and does not interfere with motion of the ligaments about the knee joint. However, I do not advocate the use of calipers by men who have not studied the principles underlying their action.

Captain Preston, working at Taplow Military Hospital, has had splendid success in the treatment of fractured tibiae and fibulae, and Capt. W. Grant Waugh has used the caliper with success on the humerus.

Special Military Surgical Hospital.

Clinical Notes, Suggestions, and New Instruments

REPORT OF A CASE OF RETROGRADE URETERAL CALCULUS

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In January, 1918, a patient in whom there was a retrograde movement of a ureteral calculus was referred to me. Though Kretschmer[1] has since reported two cases of the sort, I was unable at that time to find a report of a similar case.

REPORT OF CASE

History.—A man, aged 29, first appealed for medical advice in March, 1917, when he had his first attack of pain in the right back radiating into the abdomen, right thigh and penis. This was associated with vomiting, voiding of bloody urine and frequent desire to void. The attack required a number of hypodermic injections of morphin for relief. Three months later he had four similar attacks within ten days. He had always been delicate as a child, and had all the diseases of childhood. The father and mother were living and well. There was no tuberculosis or cancer in the family. The patient's habits were good.

Physical Examination.—He was a small, poorly developed man. His color was good. The skin was active. The pulses were normal. The pupils were equal and reacted to light and accommodation. The external ocular movements were normal. The tongue, teeth and throat were normal. The heart was of normal size and of good muscle tone; there were no murmurs. The lungs were clear, front and back. The abdomen was negative, but during an attack there was marked rigidity of the abdominal wall. The extremities were normal.

Urinalysis, after attacks, had always shown the presence of red blood corpuscles.

Roentgenoscopy, June 18, 1917, by Dr. John H. Lindsey, gave no evidence of stones in either kidney. There was a calculus at the lower end of the ureter below the brim of the pelvis on the right side.

Roentgenoscopy, Jan. 18, 1918, gave no evidence of stones in either kidney. There was a calculus at the lower end of the ureter below the brim of the pelvis on the right side.

Operation, Jan. 19, 1918.

Cystoscopy revealed the left ureter and the bladder normal. The catheter could not enter the right ureter.

Operation.—January 19, by a suprapubic incision, the peritoneum was opened, but no stone was found at the site indicated by roentgen ray. The ureter was dilated to the size of a man's thumb, and 3 inches from the bladder wall there was a moderate constriction. A probe was passed into the bladder without meeting any obstruction, and no grating feeling was detected. Exploration of the upper part of the bladder was negative. The ureter was tied off near the bladder, and the wound closed and drained with one rubber dam through a stab wound. As it was felt that this procedure had not benefited the patient, and since the right kidney felt hydronephrotic, a right nephrectomy was done. The stone was found in the removed kidney. The patient died two hours later of surgical shock.

Postmortem Examination.—The stone had evidently rested on a stricture of the ureter, and when the patient was tipped into a slight Trendelenburg position to free the pelvis of intestine, the stone had fallen back into the kidney and dropped into the lower calix, where it was out of reach of the probe.

SUMMARY

A patient gave typical symptoms and signs of a stone in the ureter. Two roentgen examinations, seven months apart, showed the location of the stone in the ureter in exactly the same position below the brim of the pelvis. There were no stones in the kidneys. Subsequent operation failed to reveal the stone on the position designated by roentgen ray. The right kidney was removed because it was hydronephrotic, and the stone was found in the kidney that had been removed.

At the time I was asked why I had not stated in my roentgenographic report that the stone was or might be movable; but I had never heard of a similar case, and could find no reports of similar cases in the literature available. I am offering this report to add to the few cases that Dr. Kretschmer and others have already sent in.

151 Rock Street.

1. Kretschmer, H. L.: The Retrograde Movement of Ureteral Calculi, J. A. M. A. **71**: 1355 (Oct. 26) 1918.

Special Article

EPIDEMIC OR LETHARGIC ENCEPHALITIS (NONA)

The name "encephalitis lethargica" was coined by Economo,[1] who described a group of cases of this disease occurring in epidemic form in Vienna in 1917. It describes a condition primarily characterized clinically by lethargy and pathologically by polioencephalitis. This term has been cricitized by English observers since it applies a clinical adjective to a pathologic substantive; the term "epidemic encephalitis" has seemed to some English authorities preferable. In this connection, Economo referred to a mysterious condition called "nona" which occurred in Italy and Hungary in the spring of 1890. Netter[2] has pointed out that, although this disease is new to present observers, on two occasions previously it has manifested itself in epidemic form, following the influenza epidemic of 1890 in northern Italy and in Hungary, and appearing in the United States and practically all of Europe in 1895.

The first cases noted in England occurred in February, 1918, and the British journals during the first half of the year contained numerous suggestive case reports. A report recently issued by the Local Government Board of Great Britain with the assistance of the Medical Research Committee[3] recognizes the disease as an infection due to a specific virus.

1. Economo: Verein f. Psych. u. Neur. in Wien, April 17, 1917; Wien. klin. Wchnschr., May 10, 1917; Neurol. Centralbl., Nov. 1, 1917.
2. Netter: Lethargic Encephalitis, Paris méd. **8**: 81 (Aug. 3) 1918; abstr. J. A. M. A. **71**: 1520 (Nov. 2) 1918; Bull. acad. de méd. **79**: 337 (May 7) 1918; abstr. J. A. M. A. **71**: 73 (July 6) 1918.
3. Report on an Inquiry into an Obscure Disease, Encephalitis Lethargica, Local Government Board Reports on Public Health and Medical Subjects, N. S. 121, London, H. M. Stationery Office, 2 s. 6 d., net.

PATHOLOGY

Professor Marinesco of Bucharest has said that the changes in the brain belong histologically to the class of poliencephalitic diseases which are inflammatory in nature. Clinically the available evidence, according to Wilson,[4] points clearly in the direction of an encephalitis amounting usually to an encephalitis of toxi-infective origin. The brains examined showed little macroscopically on the cranial surfaces beyond meningeal congestion, and, perhaps, a quite minor amount of patchy localized meningitis. On section, both gray and white matter were found to be the site of minute hemorrhagic areas scattered irregularly ("piqueté hémorragique" in Netter's phrase). Numerous necropsy reports failed to reveal any specific region of the brain as invariably affected, although there is no doubt that the regio subthalamica and the mesencephalon generally are as often affected as any other part. Motor cranial nerve nuclei are involved, while sensory nuclei escape. Microscopically, there is thickening of the leptomeninges with exudation or vascular congestion, and the gray matter is the site of perivascular cellular infiltration. In addition to these interstitial changes there are parenchymatous alterations in the shape of nerve cell degeneration and actual neuronophagia, as in poliomyelitis. Economo found evidence of regenerative processes in some of his cases.

BACTERIOLOGY

No recognizable organism has been detected in the tissues on microscopic examination. In a single one of Economo's cases an emulsion of the brain and cord was injected subdurally into a monkey by von Wiessner. The animal died in forty-six hours with symptoms of stupor for twenty-four hours previously. The brain was typical of hemorrhagic encephalitis, and von Wiessner recovered a gram-positive diplostreptococcus which he cultivated and which on injection into other apes produced somnolence and mental weakness. Von Wiessner states that a similar organism was found in all the human cases that he studied, but other observers do not mention such a finding.

CEREBROSPINAL FLUID

In all the reported cases the cerebrospinal fluid has been bacteriologically negative; the cell count has been increased in some cases.

CLINICAL SYMPTOMS

The most frequent characteristics are lethargy or stupor and symptoms indicating lesions in or about the nuclei of the third pair of cranial nerves. Usually there is fever in the early stages, the common range being between 101 and 102; but high temperatures have been reached in other cases. The pyrexia usually lasts from two to five days, but may continue longer. A period of subnormal temperature not infrequently follows. In the majority of cases a prodromal period may be recognized, but is not well defined. Usually the first symptom is simple catarrhal conjunctivitis, and in a smaller number of cases, tonsillitis, simple sore throat and bronchial catarrh; but the salient symptom observed in 80 per cent. of the cases was progressive lethargy. The onset is usually gradual, although in some cases the disease has been ushered in by a fainting attack. The patient becomes dazed or stupid, sleeps a great deal, and is drowsy by day. In marked cases, this lethargy is accompanied by heaviness of the eyelids, pain in the eyes, blurred vision, photophobia, headache, dizziness, and in some cases, diplopia and gradual passing into stupor. In some instances mental hebetude is associated with a highly emotional state, but in others the mental depression is so great that melancholia may be suspected. To summarize: The most frequent and characteristic signs in the prodromal period are lethargy, asthenia, vertigo, headache, diplopia and some alteration in the mental state.

After the prodromal period the symptoms of infection become manifest with febrile reaction, the patient lying in bed, often unable to make any voluntary muscular movement, the face expressionless and masklike, and there may be double facial paralysis. Nocturnal delirium is not uncommon, and there may be rigidity. In a considerable portion of cases the voice becomes nasal and monotonous; sentences are uttered slowly, the words slurred into one another. But in some cases, once started, the patient chatters sentences with so great a rapidity as to be unintelligible. The commonest sign is ophthalmoplegia, which was recognized in 75 per cent. of the cases examined.

Dr. A. S. MacNalty, who contributes to the British report, recognizes seven types of cases: (*a*) clinical affection of the third pair of nerves; (*b*) affections of the brain stem and bulb; (*c*) affections of the long tracts; (*d*) the ataxic type; (*e*) affections of the cerebral cortex; (*f*) cases with evidences of spinal cord involvement, and (*g*) the polyneuritic type in which affection of the peripheral nerves is suspected.

PROGNOSIS

The prognosis is usually better than is suggested by the alarming state of the patient. In the British report it is stated that of 168 cases, thirty-seven deaths were recorded. Economo reports six fatal cases out of eleven; Netter, seven of fifteen; von Wiessner, two of thirteen, and Findlay,[5] one of three. The duration of the stupor is variable, lasting from two to three days, and more often from two to five weeks, and in one case in which the patient eventually recovered, for eight weeks. Certain manifestations have persisted in some instances after the expiration of three months from the day of onset. These were an alteration in the mental condition, persistent cranial nerve palsy, the appearance of paralysis—apparently of spinal cord origin—and athetosis. In one of Findlay's patients, after five months, there remained a right sided facial paralysis, ptosis of the right upper eyelid, left external squint, and a general mental apathy.

TREATMENT

No specific method seems to be available, most authorities agreeing that the best that can be done is to put the patient to bed, providing him with good nursing, and perhaps with transient relief through withdrawal of cerebrospinal fluid. Warmth applied to the limbs is a remedy for pain, numbness and tingling. It is recommended that no opiates be given.

NOTIFICATION

This condition has been made notifiable in England. Since it is not clear to what extent the condition is a specific infection, it would appear to be desirable that the disease be made notifiable in general so that epidemiologic studies may be made in addition to bacteriologic studies on the etiology of the disease.

4. Wilson, S. A. K.: Lethargic Encephalitis, Lancet, **2**:7 (July 6) 1918.

5. Findlay, L.: Lethargic Encephalitis, Glasgow M. J. **90**:193 (Oct.) 1918.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 15, 1919

EPIDEMIC OR LETHARGIC ENCEPHALITIS

Acute Infectious Ophthalmoplegia, Acute Encephalitis, Nona?

This unfamiliar disease, many cases of which were observed in England and France early in 1918 and in Vienna in the winter of 1916-1917, when von Economo suggested the name "encephalitis lethargica," now seems to be making its appearance in various parts of this country. In the recent discussion on influenza before the Institute of Medicine of Chicago, Bassoe[1] stated that during the last few weeks he had seen several cases which were characterized by marked drowsiness and paralysis of cranial nerves, especially the ocular, and which otherwise corresponded to the clinical picture of lethargic encephalitis, and that he knew of similar observations by other physicians. Last week Pothier[2] reported the clinical details of eight cases from Camp Lee, Va., and Neal[3] mentions the occurrence of cases in New York.

In previous editorial discussions[4] of the European, especially the English, reports on lethargic encephalitis, special emphasis was placed on its similarity to the cerebral and bulbar forms of epidemic poliomyelitis, and it was suggested that further investigations might show "the new disease" to be true epidemic poliomyelitis. In the meantime, the report[5] of an extensive collective investigation of lethargic encephalitis (168 cases) has appeared from which we learn that, while nothing by way of a causal agent has been demonstrated, intracerebral inoculations of monkeys with emulsions of diseased nervous tissue failed completely to produce any results. As the monkey is readily susceptible to such treatment with similar material from cases of epidemic poliomyelitis, the present indications are that the two diseases are separate and distinct, and this conclusion is borne out also by certain clinical and epidemiologic differences to which attention has been called, by Netter in Paris, especially. It is noteworthy, however, that the anatomic changes in the two diseases are of the same general nature, and MacNalty[6] ventures the suggestion that the relation between epidemic poliomyelitis and lethargic encephalitis may be comparable to that between typhoid and paratyphoid fevers. The English investigators consequently regard lethargic encephalitis as due to an as yet unknown virus which causes inflammatory changes, especially perivascular infiltrations, in the basal ganglions, the upper part of the pons, especially in the gray matter of the floor of the fourth ventricle, and in less degree elsewhere in the medulla. It is distinctly a poliencephalitic disease: the outstanding clinical features are a more or less pronounced lethargy, often progressive, and paralysis of the third and less often other cranial nerves.[6] Ophthalmoplegia was observed in about 75 per cent. of the English cases.

It is noteworthy that cases appear to occur with the general symptoms of fever, lethargy and weakness, but without paralysis, and hence are easily mistaken for more common infections, though perhaps of the greatest importance in the spread of the disease, which now is notifiable in England and Wales. At present, however, no new cases seem to be occurring in these countries. The results of further and more complete observations of lethargic encephalitis as it occurs in this country will be awaited with special interest.

It is quite remarkable that while English and other European observers do not seem to place any special stress on the relation of the newly recognized disease to influenza, the American cases so far reported are associated by the observers, particularly Bassoe[1] and Neal,[3] more or less directly with influenza. Four of Pothier's[2] eight patients are said to have had influenza a few weeks before they came down with lethargic encephalitis. While the question thus raised cannot be answered at this time, the information we now have indicates that it is only in connection with epidemics of influenza that anything definitely resembling lethargic encephalitis is described in the older literature.

It is said that profound and prolonged sleep has been observed in connection with many epidemics of influenza since early times. Zuelzer[7] mentions that in the epidemic of 1712, somnolent conditions were so frequent and so marked that in Tübingen, for instance, the disease was known as sleeping sickness, and Longuet[8] gives a quotation from Camerarius which appears actually to describe ophthalmoplegia. Coming down to more recent times, we find that in the early nineties of the last century, at the time of the influenza outbreak of 1889-1891, quite a little was written about a since forgotten disease called "nona" (also "la nonna"), which is said to have occurred

1. Bassoe, Peter: J. A. M. A. **72**: 677 (March 1) 1919.
2. Pothier, O. L.: Lethargic Encephalitis, J. A. M. A. **72**: 715 (March 8) 1919.
3. Neal, Josephine B.: Meningeal Conditions Noted During the Epidemic of Influenza, J. A. M. A. **72**: 714 (March 8) 1919.
4. Is Epidemic Poliomyelitis Prevalent in England and France? editorial, J. A. M. A. **71**: 1221 (Oct. 12) 1918; Encephalitis Lethargica: A New Disease? ibid. **72**: 414 (Feb. 8) 1919.
5. Report on an Inquiry into an Obscure Disease, Encephalitis Lethargica, L. G. B. Rep. N. S. 121; reviewed in Brit. M. J. **1**: 45 (Jan. 11) 1918.
6. For more complete description of symptoms see p. 794, this issue.
7. Zuelzer: Influenza, Ziemssen's Handbuch der speziellen Pathologie und Therapie **2**: 506, Part 2, 1874.
8. Longuet, P.: La nona Semaine méd. **12**: 275, 1892.

especially in northern Italy and Hungary, but also elsewhere, and of which lethargy and weakness were pronounced manifestations.[9] At about the same time cases of ophthalmoplegia with stupor and somnolence were described by Blanc, Mauthner and others,[10] and the question was raised then whether "nona" was not a kind of ophthalmoplegia. "Nona," however, failed to establish itself as a definite disease, and was soon forgotten completely.[11]

TAKING CHANCES IN BLOOD TRANSFUSION

Transfusion of blood or blood constituents has become a necessity in modern clinical practice. Its general utility is unfortunately still limited by a number of difficulties of technic and incompatibilities of blood that have not been satisfactorily mastered. None of our present methods—the syringe cannula, the paraffined tube and the citrated blood procedures—are absolutely free from all objectionable features, among which unanticipated hemolysis, agglutination of the corpuscles, and febrile reactions are included. Of the dangers due to incompatibility we shall consider particularly those due to agglutination rather than those due to lysis.

In 1900, Landsteiner first suggested that human beings might be divided into definite groups according to whether or not the corpuscles of one were agglutinated by the serum of the other, or vice versa. His preliminary grouping into three classes was subsequently shown to be somewhat inaccurate, and numerous examinations made since that time have definitely shown that there are four groups. As long ago as 1907, Hektoen[12] said: "From the practical point of view, isoagglutination of human corpuscles is of immediate interest in connection with the determination of the opsonic index and with transfusion of blood." It will be remembered that in 1906 Crile had successfully transfused blood from normal to diseased human beings. Hektoen also said, in commenting on this achievement: "The occurrence of isoagglutinins in human blood suggests that under special conditions homologous transfusion might prove dangerous by leading to erythrocytic agglutination within the vessels of the subject transfused." Since 1906, transfusion has been performed on such a multitude of persons in such a great variety of disease conditions that there is good evidence to show the necessity for again repeating the warning of Hektoen to the effect that the presence of these isoagglutinins in human blood may be a danger during transfusion. Cases of transfusion in human beings with seemingly unfavorable results due to cross-agglutination were reported by Schultz (1910), Hopkins (1910) and Ottenberg (1911).

The subject has been somewhat complicated by the introduction of the citrate method of transfusion, whereby the agglutination of the blood during transfusion is prevented by the addition of a small quantity of sodium citrate. This method of transfusion, being relatively easy, has become quite a vogue, and has led many observers to believe that preliminary tests of the compatibility of donors' and recipients' blood are unnecessary. This appears to have been the case especially with some of those who utilized the transfusion of convalescents' blood as a means of treatment during the recent epidemic of respiratory diseases. Recently Pemberton has reported on 1,036 blood transfusions, and he further emphasizes the need of preliminary tests.[13] This large series of transfusions was made in the Mayo Clinic between 1915 and 1918, thirty-five of them by direct methods and 1,001 by the citrate method. Pemberton is convinced of the importance of preliminary tests before transfusion. He points out that Bernheim in 1915 collected data of 800 transfusions by twelve different operators, and reported hemolysis in fifteen cases with four deaths. In twelve cases in the series of transfusions in the Mayo Clinic there were group reactions. In every case in which the blood had been grouped by the microscopic test, the observers were able to locate later the error in the test, most of them due to clerical errors in recording the group of the donor or the recipient. He describes a typical reaction, such as occurs when transfusion is done between persons of incompatible groups:

> They occur early after the introduction of 50 or 100 c.c. of blood; the patient first complaining of tingling pains shooting over the body, a fulness in the head and an oppressive feeling about the precordium, and, later, an excruciating pain localized in the lumbar region. Slowly but perceptibly the face becomes suffused, a dark red to a cyanotic hue; respirations become somewhat labored, and the pulse rate, at first slow, sometimes suddenly drops as many as 20 to 30 beats a minute. The patient may lose consciousness for a few minutes. In one half of our cases an urticarial eruption, generalized over the body, or limited to the face, appeared along with these symptoms. Later the pulse may become very rapid and thready; the skin becomes cold and clammy, and the patient's condition is indeed grave. In from fifteen minutes to an hour, a chill occurs, followed by high fever, a temperature of 103 to 105 degrees, in which the patient may become delirious. Jaundice may appear later. The macroscopic appearance of hemoglobinuria is almost constant. In three such instances the symptoms were not recognized at the time of transfusion, and 500 c.c. of blood were injected. All the patients died,

9. For reference to the literature on nona, which is well abstracted by Longuet, see Index Catalogue, Library of Surgeon-General's Office, Series 2, **7**: 945, 1902 (Anomalous and Unusual Forms of Influenza).

10. Cited by Longuet (Footnote 8).

11. The derivation and meaning of the word "nona" are obscure. It may have been a corruption of coma. Nona means literally ninth hour, and there is no evident connection between this meaning and the disease in question. "La nonna," a name also given the disease sometimes, means grandmother literally, and here again the connection is not evident. Nona is defined as follows in Foster's Encyclopediac Medical Dictionary (1894): "An alleged new form of disease reported in 1890 from northern Italy, Bavaria and Russia. It appears, however, that there is no foundation for the supposition that there is any such new disease, and that the reports are founded on cases of comatose typhoid fever, somnolence following influenza, and smallpox of an irregular and severe development."

12. Hektoen, Ludvig: Isoagglutination of Human Corpuscles, J. A. M. A. **48**: 1739 (May 25) 1907.

13. Pemberton, J. de J.: Blood Transfusion, Surg., Gynec. & Obst. **28**: 262 (March) 1919.

two in one and three hours, respectively, following the transfusion, and one became comatose shortly afterward and died thirty hours later. In the other nine instances the symptoms were early recognized and interpreted, and the transfusion was concluded after the injection of 50 to 100 c.c. of blood. Adrenalin [epinephrin] and atropin were administered with good effect. There was no mortality in this group.

He concludes that these cases "point out most strikingly the fact that the injection of incompatible blood, namely, in which the donor's cells are agglutinable by the serum of the patient, is attended by the development of symptoms of the gravest nature, and that if these are not early recognized and the transfusion concluded before the injection of a large quantity of blood, fatal results are to be expected."

In the case of citrate transfusions, certain special untoward factors concerned have been made the subject of study in man by Drinker and Brittingham[14] at the Harvard Medical School laboratories. They have failed to observe any constant relation between the method of citration or the purity of the citrate used and the number of reactions. The objectionable component resides in the cells of the blood; for citrated plasma, thoroughly freed from all formed elements by prolonged high speed centrifugalization or by porcelain filtration, is singularly nontoxic, contrasting markedly with serum in this regard. On the other hand, the washed whole cell content of blood is uniformly toxic, whether injected into the individual from which the cells have been removed (plasmapheresis) or into different individuals who have been tested and show no agglutination or hemolysis of red cells.

A further analysis of the location of the factors in the cells responsible for the difficulties indicates that reactions decrease as the platelets are removed from the transfusion mixture. The Harvard investigators report that salt solution, red cells, white cells in greatly reduced numbers, and absence of platelets make the most perfect blood for transfusion that they have observed. Apparently changes in the platelets as a part of the process of coagulation represent a transformation responsible for the appearance of toxicity. The leukocytes themselves seem to be devoid of incompatibilities. Finally, they seem to have shown that citration harms the red cells, thereby promoting the possibility of hemolysis in otherwise compatible bloods. They found 44 per cent. of reactions with citrated blood, as compared with 20 per cent. of reactions when uncitrated blood transfusions were performed. They state that 20 per cent. is a decidedly lower percentage of reactions than has been obtained with any other method.

Contrasted with their small series, however, is that of Pemberton, who found only 219, or 21 per cent., of reactions in the 1,036 cases which he analyzes. Lewisohn[15] has also recently reported 200 cases, and is convinced that the frequency of chills is about the same with the citrate as with other methods. He, too, found reactions in 20 per cent. of his cases.

Thus, one by one, the detrimental factors in transfusion are being recognized. The next steps consist in devising ways to avert or eliminate them and thereby make a frequently desirable performance more dependable and less threatening.

14. Drinker, C. K., and Brittingham, H. H.: The Cause of the Reactions Following Transfusion of Citrated Blood, Arch. Int. Med. **23**: 133 (Feb.) 1919.

15. Lewisohn: Am. J. H. Sc. **157**: 253, 1919.

WAR CHEMISTRY AND MEDICINE

The signing of the armistice and the prospect of a long, if not permanent, peace have lifted the veil of secrecy that has long hidden many undertakings of great scientific interest in connection with the war. Only a few months ago every one was saving fruit kernels and nut shells at the behest of the American Red Cross. It was vaguely known that the materials were to be converted into charcoal, which was to be employed in the manufacture of gas masks. But why these particular products were selected, what became of them, and how they act were questions that belonged to the great mass of mysteries developed by the secrecy of war time.

Colonel Burrell,[16] chief of the research division of the chemical warfare service, has at length disclosed some of the "inside history" of his service. The absorbent value of charcoal of a suitable sort is extraordinary. During its preparation, a film of hydrocarbons is likely to remain adherent to the surface of the particles. To remove this is highly important, because it seriously diminishes the absorptive power. American initiative, guided by chemical science, found a way to overcome the difficulty. By oxidizing processes the charcoal was cleansed of its hydrocarbon film and rendered active.

The extraordinary and utterly unexpected diversity of gases and other noxious substances employed by our enemies in their warfare[17] early taxed the ingenuity of all the Allies to devise satisfactory respirators. At first an alkaline solution was sufficient to protect against inhalation of chlorin; but when phosgen, prussic acid, xylyl bromid, chlorpicrin, bromacetone, and a succession of other equally formidable products had to be taken into account, cheesecloth impregnated with alkali or even with sodium phenate and hexamethylenamin no longer saved the wearer of the mask from untoward effects. The soda-lime finally developed and used in masks contained lime, cement, infusorial earth, sodium hydroxid, sodium permanganate, and water. Each ingredient performed a definite function. The lime furnished the main part

16. Burrell, G. A.: The Research Division, Chemical Warfare Service, U. S. A., J. Indust. & Engin. Chem. **11**: 93, 1919.

17. War Gases and Chemical Warfare, editorial, J. A. M. A. **71**: 1742 (Nov. 23) 1918.

of the absorption for acid gases, which it neutralizes, generally with the formation of calcium chlorid. The cement is used to make the granules sufficiently hard and yet not decrease the porosity, which is fatal to good absorption. Several other binders give equally good hardness, but all destroy the porosity. The infusorial earth is used to increase the porosity of the granule and thus permit the gas to have access to the interior and utilize the full absorptive capacity of the granule. The sodium hydroxid activates the rate of absorption of most gases, and, in addition, makes the control of the drying process more simple and tends to maintain the proper water content in the finished granule. The sodium permanganate is used primarily to oxidize certain oxidizable gases, which are difficult to absorb in gas masks. The water is necessary in making up a satisfactory mixture, and, after drying, a fairly definite moisture content is needed to get the best results in the absorption of gases.

Nor is the story of prophylactic measures against chemical modes of warfare completed with the description of the gas masks. Since most of the casualties from the widely used mustard gas were due to skin burns, it became necessary to devise suitable protective clothing. Gummed suits might be appropriate in winter, but they became a physiologic impossibility in hot days. Yet even this handicap was finally overcome by the designing of suits that were not impermeable to air and moisture, yet absorbed mustard gas vapor.

Some day an orderly account of the almost infinite variety of chemical problems that the government was called on to answer in this war will be written. It will be a story of fascinating interest. We shall learn how one scientist devoted his energies to the production of metal Dewar flasks for providing liquid oxygen to aviators; how another one spent days in finding the best way to disperse toxic solids or liquids, producing a fine powder or mist to penetrate masks; how many others worked unceasingly to synthesize new types of toxic compounds of arsenic or selenium or tellurium, whereupon colleagues tested their pharmacologic potency; how face masks with nondimming eyepieces were made comfortable for working and sleeping hours; how helium was extracted from natural gas to replace hydrogen in balloons. Now that the war is over we can pause to consider innumerable scientific advantages of the ceaseless labor and investigation of the past months. The thought that went into the war work, says a reviewer of its details, cannot be destroyed. The industries have gained much through the personal sacrifices of American chemists; likewise has medicine. The charcoal, the gas mask, the many potent new compounds, the liquid oxygen, the protective clothing, the dispersoids—these and dozens of other discoveries will surely find an application, somehow, somewhere, some day.

FOOD AND METABOLISM

It is becoming a common experience in these days to speak of food in terms of calories rather than ounces, and to make comparisons between different nutrient substances on the basis of their so-called energy or fuel values. The ordinary student of nutrition, as well as the casual reader of dietetic literature, is more than likely to gain the impression that, calory for calory, most foods are interchangeable so far as their nutritive value is concerned. The inadequacy of such a conclusion has repeatedly been emphasized in these columns. The food calorimeter gives no indication of the factor of digestibility, for example, without which concentrated calories are quite as worthless for human physiologic purposes as is a piece of anthracite coal. There is, furthermore, a growing realization of the inadequacy of the hypothesis of the "isodynamic replacement" or equivalence of foods which was so generally taught a few years ago. The ingestion of various foodstuffs is followed by an increased heat production, which Rubner designated as their "specific dynamic action" and which has proved to be somewhat of an obstacle to the acceptance of any simple theory of equivalence of food calories in nutrition.

For a long time the easiest explanation of the increase in metabolism after food ingestion was that it represents actual physiologic work and expenditure of energy incidental to the increased activity of the intestinal tract in the presence of dietary substances. Rubner has always denied this view, which was championed by the physiologist Zuntz. In an interesting symposium on the subject before the Fifteenth International Congress on Hygiene and Demography,[1] held at Washington in 1912, there was a general agreement that the different foodstuffs actually stimulate the metabolism, and, indeed, in unlike degree. The search for an explanation of this augmentation of metabolism, apart from any external work done, has been continued in the intervening years.

As this stimulation is particularly pronounced after the ingestion of nitrogenous foods in contrast with carbohydrates and fats, attention has largely been centered on the possible effects of absorbed amino-acids on metabolism. Some of the German investigators[2] have contended that "specific dynamic action" is an expression of the changes associated with the denitrification of amino-acids (derived from proteins by digestion) and the process of consequent urea formation. Recent studies of Lusk[3] at the physiologic laboratory of Cornell University, New York City, contradict this view. There is a very marked difference in the capacity of the various familiar amino-acids to increase heat production, quite aside from their behavior as

1. Tr. XV Congr. Hyg. and Demog. **2**, 1912.
2. Grafe, E.: Deutsch. Arch. f. klin. Med. **118**: 1, 1915-1916.
3. Atkinson, H. V., and Lusk, Graham: Animal Calorimetry, XV, Further Experiments Relative to the Cause of the Specific Dynamic Action of Protein, J. Biol. Chem. **36**: 415, 1918.

antecedents of urea. In fact, the more probable explanation at present points to the non-nitrogenous rests of the amino-acids—to such compounds as hydroxy acids or keto-acids—as the effective agencies in the increased metabolism following the ingestion of protein. Either similar intermediary products in the breakdown of fats and sugars, or the metabolism due to a great plethora of the latter when they are ingested in abundance, may also occasion increased heat production when nonprotein foods are ingested in a large amount.

The mathematical relation between the increase in heat production due to the ingestion of food and the fuel value of the intake is not inconsiderable in some conditions. Benedict and Carpenter,[4] who have termed it the "cost of digestion," estimate this to be not far from 6 per cent. on the average, in the case of carbohydrates; with fat the increase is about 2 per cent. of the fuel value of the intake, with a protein-rich diet approximately 12 per cent., and with mixed diets 6 per cent. Their experiments in the Carnegie Institution Nutrition Laboratory at Boston indicate that the mere work of mastication, such as would be involved in chewing gum continuously, may determine an increment in the heat production of approximately 17 per cent. Coffee, owing probably to its content of caffein, acts as a stimulant to metabolism. By eating a large meal of mixed foods it is easily possible to stimulate metabolism to 40 per cent. above the resting, basal value for a number of hours, and to 20 per cent. for at least eight hours. In this sense, then, we may truly speak of the stimulating effect of our nutrients in general.

4. Benedict, F. G., and Carpenter, F. M.: Carnegie Inst. of Washington, Publication 261, 1917.

Current Comment

THE VICTORY OVER RABIES

Amid the victories on the European battlefields that have thrilled the hearts of all warm-blooded Americans and every lover of democracy throughout the world, we may well pause for a moment to contemplate another type of victory—man's conquest of rabies, the dire disease that once meant a painful end for most of those who were inoculated with its deadly germs. Year after year the reports of the lives saved by the fruits of Pasteur's pioneer labors in combating the microbial enemies of mankind bring the story of the beneficent influence of this great Frenchman's contribution to medical science. While the names of great generals and distinguished statesmen are attracting foremost attention in the eyes of all the world, and men are rehearsing the conquests and combats of former great struggles, let us not forget the perennial victory over rabies. During the year 1916, according to a report recently issued, 1,008 persons from the district of Lyons received the antirabic treatment at the bacteriologic institute in that city.[1] A single death in this list places the mortality at 0.099 per cent. Since 1900, more than 9,000 persons have received antirabic inoculations, with a total of nine deaths, or 0.09 per cent. The story has become an old one; but it will long bear repetition as an eloquent testimony to the blessings of intelligent scientific research.

THE TOMATO AS AN ANTISCORBUTIC

Several circumstances recently have conspired to direct attention to the problem of antiscorbutics. Scurvy has made its appearance among various groups of persons abroad because of conditions directly or indirectly brought about by the war. The shortage of antiscorbutic green foods in certain areas has emphasized the need of preventive measures that belong at present entirely within the realm of diet. The difficulties of transportation and of food conservation have suggested the employment of products preserved by desiccation or other methods in order that the seasons of plenty may serve the periods of scarcity. Valued antiscorbutics like orange juice have become too expensive for use among the less-well-to-do classes. In view of this situation it is not surprising to find vigorous efforts displayed here and abroad in the attempt to discover "ways and means" out of the impending difficulties. Some of the results achieved have already been outlined in THE JOURNAL.[2] Side by side with the juice of the lemon and the swede, the tomato is now worthy of ranking, according to the simultaneously published observations of Hess and Unger[3] at the Bureau of Laboratories in the New York City Department of Health, and of Givens and McClugage[4] at the University of Rochester. Hess and Unger have actually administered canned tomatoes to infants who were receiving pasteurized milk, substituting it in the dietary for orange juice, which has become increasingly expensive. The amount given to babies 3 months or more of age was 15 c.c., half this quantity being given daily to younger infants. The tomatoes have been uniformly well tolerated throughout the summer by babies as young as 1 or 2 months of age. The fact that both the New York and the Rochester investigators found that the methods of preservation—canning and drying, respectively—do not entirely deprive the tomato of antiscorbutic potency gives a welcomed addition to the list of perennially available food products that can be depended on to protect infants, as well as adults likewise depending on restricted diets, from the danger of scurvy.

1. Rochaix, A.: Le traitement antirabique dans la région lyonnaise (1916), J. de physiol. expér. **17**: 692, 1918.
2. Further Facts Regarding Antiscorbutics, editorial, J. A. M. A. **72**: 728 (March 8) 1919.
3. Hess, A. F., and Unger, L. J.: Canned Tomatoes as an Antiscorbutic, Proc. Soc. Exper. Biol. & Med. **16**: 1, 1918.
4. Givens, M. H., and McClugage, H. B.: Preliminary Observations on the Value of Raw and Dried Tomatoes as Antiscorbutic Foods for Guinea-Pigs, Proc. Soc. Exper. Biol. & Med. **16**: 2, 1918.

Increase in Deaths from Illuminating Gas.—The records of the New York City Health Department show that for the first eight weeks of 1918 there have been 232 deaths from illuminating gas, as against 145 during the corresponding period of 1916, an increase of eighty-seven deaths.

Association News

THE ATLANTIC CITY SESSION

Advisory Committee on Scientific Exhibit—Desirability of Early Application for Space

The following Advisory Committee on Scientific Exhibit has been appointed for the Atlantic City Session: Harlow Brooks, New York; A. S. Warthin, Ann Arbor; George Dock, St. Louis; C. C. Bass, New Orleans; Walter B. Cannon, Boston; L. B. Wilson, Rochester, Minn.; William M. L. Coplin, Philadelphia; James T. Case, Battle Creek, Mich.; Joseph C. Bloodgood, Baltimore; E. R. LeCount, Chicago; Oscar Klotz, Pittsburgh, and F. P. Gay, Berkeley, Calif.

The Scientific Exhibit will occupy the pavilion of the new steel pier. Applications for space may be secured from the Director of the Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago. In order that suitable plans may be made, it is desirable that applications be submitted as early as possible.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending March 7, the Medical Corps contained 21,103 officers, a decrease from the previous week of 442. The Medical Reserve Corps contained 876 officers. The total number of medical officers discharged since the beginning of the war is 12,458.

Medical Veterans of the World War

Physicians who rendered service to the government during the world war either as officers of the Medical Corps of the U. S. Army, of the U. S. Navy or of the U. S. Public Health Service; as contract surgeons in the U. S. Army or acting assistant surgeons of the U. S. Public Health Service; as medical members of Local Boards, or members of the Medical Advisory Boards, are eligible to membership in the Medical Veterans of the World War. As previously announced, Col. F. F. Russell, Army Medical School, Washington, D. C., is secretary of the temporary organization. Those interested should write to him for forms for making application for membership. With these applications there should be forwarded $1 in payment of the first year's annual dues.

Distinguished Service Medal Awards

By direction of the President, the Distinguished Service Medal is awarded for exceptionally meritorious and conspicuous service to the following named officers:

EDWARD L. MUNSON, Brig.-Gen., M. C., U. S. Army, for exceptionally meritorious and conspicuous service. He developed the scheme of field training for officers and enlisted men of the Medical Department, directed the organization and administration of the medical officers' training camps, and organized and administered the Morale Branch of the General Staff.

THEODORE C. LYSTER, Col., M. C., U. S. Army, for exceptionally meritorious and conspicuous service; for duty rendered in the Office of the Surgeon-General as Chief, Air Service Division.

Prisoners Released

The following officers, who have been prisoners in Germany, are reported to have been released from German camps and hospitals and returned to France: Frank K. Miller, Madera, Pa., and Abraham Julius Gordon, Newark, N. J., Lieuts., M. C., U. S. Army.

Wounded Severely

The following officers are reported in the *Official Bulletin* as having been wounded severely: Raymond C. Turck, Lieut.-Col., M. C., U. S. Army, Jacksonville, Fla.; Horatio N. Jackson, Major, M. C., U. S. Army, Burlington, Vt.; Russell Rulo Heim, Capt., M. C., U. S. Army, Grantsburg, Wis., and Ernest J. Hoover, Altoona, Pa.; Claude Edwin Snyder, Altoona, Pa.; Wesley J. C. Wiemers, Houston, Texas, and Lloyd Edward Wurster, Linden, Pa., Lieuts., M. C., U. S. Army.

Wounded Slightly

The following officers are reported in the *Official Bulletin* to have been slightly wounded: Walter J. Johnson, Frankewing, Tenn.; Edward J. Kennedy, Milford, Ohio; David Sussler, Dorchester, Mass.; Joseph K. Surls, Brookline, Mass.; Milton C. Wiggins, Cottagegrove, Tenn.; Schuyler Colfax Harbour, St. Louis, Mo.; Lester L. Powell, Saco, Mo.; Alfred M. Bergstein, Pottsville, Pa.; Clarence H. Denser, Xenia, Ohio, and Eugene Rank Cocke, Asheville, N. C., Lieuts., M. C., U. S. Army, and Harold F. Park, Boston, Mass., Capt., M. C., U. S. Army.

Wounded, Degree Undetermined

The following officers are reported in the *Official Bulletin* as having been wounded (degree undetermined): Adolph Francis Srb, Dodge, Neb.; William L. Hanson, Belleville, Ill.; Lorens A. Haug, Canton, S. C.; Edwing E. Miller, Nashville, Tenn.; Eugene Henry McCaffrey, Maquoketa, Iowa; Alton W. Davis, Mitchell, Ga.; Farrar B. Parker, New Orleans; John Browning Baldwin, Marshall, Texas, and John Logan Steffy, Pittsburgh, Lieuts., M. C., U. S. Army, and Harold H. Freund, New York; Frederick R. Hickey, Manhattan, Kan.; John Armstead Winstead, Nashville, N. C., and Chester L. Barry, Oxford, Pa., Capts., M. C., U. S. Army.

Military Cross Awards

King George V, March 5, conferred the Military Cross on the following medical officers: Edward A. Christofferson, Capt., M. C., U. S. Army, Chicago; Alexander J. Gillis, Baltimore, and Robert B. MacDuff, Flint, Mich., Lieuts., M. C., U. S. Army; William L. Smith Capt., M. C., U. S. Army, Toledo, Ill., and Frederick B. Little, Capt., M. C., U. S. Army, Uniontown, Pa., for bravery under fire.——The Military Cross was awarded to Thomas L. Doyle, Capt., M. C., U. S. Army, Tremont, Pa., for "great gallantry and devotion to duty in dressing the wounded under continuous shell fire for seven days during the battle of Saint Quentin Canal, said duty being performed in open with no protection, being exposed continually to enemy machine gun and shell fire."

Receives Medal of Honor

Clarence C. Burlingame, Lieut., M. C., U. S. Army, South Manchester, Conn., on duty with the American Red Cross in France was decorated, Dec. 24, 1918, by the French government with the Medal of Honor of the first class. The diploma accompanying the medal reads: "In the name of the President of the Republic, the minister of war bestows a Medal of Honor in vermeil on Dr. Burlingame. He has given his most precious services for the organization and installation of numerous medical formations where French wounded have been taken care of, especial mention being made for work during the grip epidemic. Dr. Burlingame is authorized to wear this medal suspended by the tricolor ribbon equally divided. This diploma has been delivered in order to perpetuate in his family and among his fellow citizens the memory of his honorable and courageous conduct."

Victoria Cross Awarded

The British military authorities have awarded the Victoria Cross, the highest appreciation for bravery in their power to bestow, to Bellenden Seymour Hutcheson, Capt., M. C., U. S. Army, Mound City, Ill. Captain Hutcheson was attached to the 97th Canadian Battalion, and on going to the battle front was appointed medical officer of the 75th (Toronto) Battalion of the first Central Ontario Regiment. The official record states that the award was bestowed on him "for most conspicuous bravery and devotion to duty, Sept. 2, 1918, when under most intense shell, machine gun and rifle fire, he went through the Quéant-Drocourt support line with his battalion. Without hesitation and with utter disregard of personal safety he remained on the field until every wounded man had been attended to. Captain Hutcheson performed many similar gallant acts, and by his coolness and devotion to duty many lives were saved."

Win War Crosses

George Harrison, Capt., M. C., U. S. Army, Ashland, Wis., on duty overseas, was awarded the Croix de Guerre at Toul by French authorities for extraordinary bravery under fire.——Bertram Tremblay, Lieut., M. C., U. S. Army, Manchester, N. H., has been awarded the Croix de Guerre.——Ivor D. Fenton, Capt., M. C., U. S. Army, on duty with the 315th U. S. Infantry, has been recommended for the Croix de Guerre for gallant service in the Argonne Forest.——Robert J. Lawler, Major, M. C., U. S. Army, Niagara Falls, N. Y., on duty with the Fifth Regiment, has been awarded the Croix de Guerre.——David Reynolds Morgan, Capt., M. C., U. S. Army, Edwardsville, Pa., three times cited for bravery, has been awarded the Croix de Guerre.——C. P. Price, Lieut. M. C., U. S. Army, Mercer, Ky., on duty with the Seventeenth Field Artillery, Second Division, has been awarded the Croix de Guerre for conspicuous bravery at the battle in the Blanc Mont sector.

Abandonment of Army Hospitals

With the abandonment of a number of Army camps and the concentration of sick and wounded soldiers in city hospitals, the Surgeon-General of the Army is taking steps to discontinue several camp hospitals. The base hospitals at Camps Cody, N. M.; MacArthur, Texas, and Hancock, Ga., and General Hospitals No. 18, at Waynesville, N. C., and No. 23 at Hot Springs, N. C., are slated for abandonment at an early date. In addition, it is also proposed to discontinue base hospitals at Camps Greene, N. C.; McClellan, Ala.; Sevier, S. C.; Wheeler, Ga.; and General Hospitals No. 15, at Corpus Cristi, Texas; No. 17, at Markleton, Pa.; No. 37, at Madison Barracks, N. Y., and Debarkation Hospital No. 52, at Richmond, Va. The capacity of the hospital at Camp Kearney, Calif., will be reduced to 500 beds. The Surgeon-General has recommended that General Hospital No. 33 at Fort Logan H. Roots, Ark., be changed to a post hospital, and that the post hospitals at Edgewood, Md., Arsenal, Eustis and Humphreys, Va., be made camp hospitals. No more overseas patients will be sent to any of the foregoing hospitals, except Camp Kearney.

Weekly Bulletin, A. E. F.

(Feb. 3, 1919)

PROMOTIONS

As stated last week, on Jan. 16, 1919, the chief surgeon forwarded [to G. H. Q. through headquarters, S. O. S.] a list of recommendations for promotion embracing eighty-five lieutenant-colonels to grade of colonel, 282 majors to grade of lieutenant-colonel, 932 captains to grade of major, and 2,457 lieutenants to grade of captain. In sending this list the comment is made that it is certain that many of the medical officers serving with the British have not received the promotion to which the law and the character of their services have entitled them. They have failed to get their merited promotion because in addition to the obstacles, delays and accidents which have been incidental to the history of promotions in the A. E. F. there was the added delay of mail communication with the B. E. F., and the great difficulty in getting from the 900 or more officers on duty with the British the reports of character of service and qualifications on which the roster was based which determined their promotion, up to and including major.

The necessity for making promotions in the Medical Corps of the A. E. F. has been especially urgent because most of the reserve corps officers were commissioned in the lowest grade (first lieutenant), which was originally the only one, including men who had been fifteen or twenty years in practice. It was the intention of the Surgeon-General to give these men prompt promotion as soon as their fitness for positions of increased responsibility was demonstrated, but the machinery for promotion has presented unexpected difficulties in the A. E. F., and therefore we find the proportion of lieutenants to be about 60 per cent. instead of the 14 per cent. provided by law.

Very few promotions were made during the first ten months of the existence of the American Expeditionary Forces. Those proposed by the chief surgeon were, as a rule, disapproved on the ground that definite and methodical scheme of promotion, which would, as nearly as possible, do justice to all, should be presented before the commander-in-chief would be willing to make promotions except in very exceptional cases. Such a scheme was finally worked out and presented to the commanding general on May 17, 1918.

This plan was for the application of the principle of selection for the grade of captain and major by means of a roster on which each man took his place according to a roster number obtained by the addition of certain factors which were:

1. Age, which represents in a general way professional experience.
2. Military service, which represents military experience.
3. Character of service and special qualifications, which are given a numerical value in accordance with a special report made in each case by the immediate superior officer.

This scheme was approved in principle, May 31, and finally approved by the commander-in-chief, June 27. The first list was forwarded on June 15 and five others in July. A number of other lists were forwarded in August. All lists after September 4 were held at general headquarters for action there under G. O. 78. Promotions of lieutenants, however, were not cabled to Washington but sent by courier and even in the case of those of higher grades the inevitable delays in the War Department made the process of getting through a promotion very slow. The entire summer passed without any promotions being received by medical reserve officers except one group on June 6. It was recently discovered that the list which was forwarded from this office on August 21 and sent by cable to the adjutant-general on September 2 was apparently never received but apparently lost in the cable office. This list contained the names of fifty-four captains recommended for promotion to major. A letter was recently written requesting that these nominations, which received the approval of the commander-in-chief more than four months ago, be now published as promotions of that date.

The chief surgeon was informed on September 4 by the Adjutant General, A. E. F., that a new War Department General Order on the subject of promotions (G. O. 78, W. D., Aug. 22, 1918) was enroute from the United States. It was hoped that this order, which authorized promotions to be made by the commander-in-chief up to and including the grade of colonel, subject to confirmation by the War Department, would greatly simplify and expedite promotions. This expectation was, however, disappointed because the opinion was advanced that in order to determine the question of whether vacancies existed an approved table of organization was necessary. It was then pointed out by the chief surgeon that as the law provided that there should be a certain proportion of medical officers in each grade, the number of vacancies in each grade could be readily determined by applying the proportions to the total number of medical officers in the A. E. F. The opinion was then expressed by the Judge Advocate's Office that the Surgeon-General should be a party to this arrangement in order that the legal proportions in each grade should not be exceeded for the Medical Department with the other forces. The question of the applicability of General Order 78 to the Medical Department was finally referred to the War Department by cablegram of the commander-in-chief dated October 11, which was replied to by the chief of staff on October 19, stating it *did not apply* to officers in the Medical Department. It is understood that the negative in this cable was an error in coding. When the matter was again presented by the commander-in-chief on October 28, for reconsideration he was informed by cable of November 5, that his request for authority to promote medical officers was approved. The chief surgeon was informed of this decision on November 7, but four days later the armistice was signed and stopped all temporary promotions. During this short period, however, 672 medical, thirty-two sanitary, and fifty-three veterinary officers were promoted.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA
Los Angeles—Crispin, E. L.
Palo Alto—Williams, T. M.
San Francisco—Vogel, A. B.

DISTRICT OF COLUMBIA
Washington—Crawford, C. B.

ILLINOIS
Dixon—Thompson, W. A.

KANSAS
Kansas City—Little, A. W.

MASSACHUSETTS
Cambridge—Dow, D. C.

NEW JERSEY
Jersey City—McLaughlin, G. E.

NORTH CAROLINA
New Bern—Jones, R. D.

OREGON
Marshfield—McCall, R. G.

PENNSYLVANIA
Philadelphia—LeConte, R. G.
Talley, J. E.

PHILIPPINE ISLANDS
Manila—Reed, J. E.

RHODE ISLAND
Providence—Mathews, F. H.
Porter, L. B.

WISCONSIN
Madison—Opstedal, J. A.
Wauwatosa—Van De Erne, J.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L., signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel, and B. G., brigadier-general.

ALABAMA

Birmingham—Boxer, H. (C.)
Hardy, W. B. (L.)
McAlester, J. S. (L. C.)
Scott, W. F. (M.)
Boaz—Cooley, B. S. (L.)
Jackson—Bedsole, J. G. (L.)
Selma—Elebash, C. C. (L.)
Silas—Tayler, E. E. (L.)
Tuscaloosa—Moody, M. (C.)

ARIZONA

Buckeye—Hughes, H. A., Jr., (L.)
Globe—Adams, C. W. (L.)

ARKANSAS

Fort Smith—Dorante, D. R. (C.)
Hermitage—Wilson, G. L. (L.)
Hot Springs—Thompson, L. (M.)
Wade, H. K. (L.)
Hughes—Pollard, E. W. (L.)
Leslie—Hollabaugh, C. B. (L.)
Little Rock—Freemyer, W. N. (L.)
Hinkle, S. B. (C.)
Lee, D. C. (L.)
Monticello—Cotham, E. R. (C.)
Texarkana—Fuller, T. E. (L.)

CALIFORNIA

Bakersfield—Smith, J. K. (L.)
Byron Hot Springs—Smithwick, J. M. (L.)
Long Beach—Keller, W. F. (L.)
Los Angeles—Duncan, W. C. (L.)
Heffelfinger, M. A. (C.)
Wiley, E. H., Jr. (C.)
Oakland—Koford, H. (L.)
Sampson, J. H. (C.)
Oakville—Leonhardt, S. C. (C.)
Orange—Chapline, F. L. (C.)
Pasadena—Hansen, C. D. (C.)
Sacramento—Hale, N. G. (L.)
San Bernardino—Blair, E. S. (C.)
San Francisco—Best, E. J. (C.)
Roche, T. B. (C.)
Ruggles, H. E. (C.)
Winterberg, W. H. (L. C.)
San Mateo—Chidester, W. C. (M.)
Willows—Lawson, F. M. (L.)

COLORADO

Crawford—Duncan, O. A. (L.)
Denver—Bell, C. C. (L.)
Drinkwater, R. L. (M.)
Hough, L. (C.)
Julesburg—Dutton, F. G. (L.)
Lamar—Likes, L. E. (L.)
Milliken—Fuson, C. C. (C.)

CONNECTICUT

Hartford—Smith, E. T. (M.)
Wells, D. B. (C.)
Milford—Heady, C. K. (L.)
Naugatuck—Dayton, A. B. (L.)
New Haven—Arnold, H. S. (M.)
Flint, J. M. (L. C.)
Porter, D. W. (C.)
Welch, H. L. (C.)

DISTRICT OF COLUMBIA

Washington—Digges, J. H. (C.)
McCandlish, H. S. (L.)
Mitchell, J. F. (L. C.)
Seibert, E. G. (L. C.)

FLORIDA

Fountain—Pennington, J. L. (L.)
Hastings—Padgett, B. L. (L.)
Inverness—Cranford, J. F. (L.)
Jacksonville — Livingston, J. A. (M.)

GEORGIA

Grayson—Dickens, C. H. (L.)
Pembroke—Strickland, J. O. (L.)
Ray City—Anderson, G. M. (C.)
Savannah—Howard, L. (L.)
Jones, J. P. (L.)
Valdosta—Smith, T. H. (L.)

HAWAII

Honolulu—Ketchum, W. H. (C.)
Milnor, G. C. (L.)

IDAHO

Pocatello—Howard, W. F. (C.)

ILLINOIS

Algonquin—Pillinger, H. H. (C.)
Alton—Williamson, M. R. (L.)
Antioch—Turner, J. A. (L.)
Bradford—Chrisman, W. D. (L.)
Chatsworth—Palmer, F. W. (L.)
Chicago—Carr, J. G. (C.)
Case, J. T. (L. C.)
Farley, R. T. (L.)
Finsand, V. (L.)
Frothingham, H. H. (M.)
Halstead, A. E. (L. C.)
Huggard, T. S. (L.)
Jones, J. G. (L.)
Kappleman, J. A. (C.)
Kepner, R. B. (L.)
Kleutgen, A. C. (C.)
Kuhns, R. H. (C.)
Leight, C. W. (M.)
May, H. F. (L.)
McGrath, W. D. (L.)
Meloy, W. W. (C.)
Novy, B. N. (L.)
Percy, N. M. (L. C.)
Preble, R. B. (L. C.)
Schick, F. J. (L.)
Scott, O. F. (C.)
Siegler, W. J. (L.)
Silverstein, W. I. (L.)
Stevenson, W. W. (L.)
Swanson, H. T. (L.)
Thorpe, J. N. (M.)
Wermuth, A. W. (C.)
Williamson, C. S. (L. C.)
Cooksville—Swinehart, B. O. (L.)
Dixon—Robbins, C. A. (C.)
East St. Louis—Barker, R. F. (L.)
Elmhurst—Berkey, H. A. (L.)
Granite City—Schroeder, H. C. H. (L.)
Highland Park—Moore, A. O. (L.)
Kewanee—Fischer, H. L. (L.)
La Salle—Woods, R. H. (L.)
Litchfield—Griswold, R. W. (C.)
Oak Park—Savage, R. G. (L.)
Utley, R. E. (L.)
Ottawa—O'Conor, V. J. (L.)
Pleasant Plains—Huber, F. D. (L.)
Rockford—Elvidge, R. E. (L.)
Rushville—Munson, H. O. (C.)
Sadorus—Bundy, C. D. (C.)
Savanna—Cottral, G. H. (C.)
Springfield—Herndon, R. F. (L.)
Smith, E. D. (L.)
Streator—Reno, C. G. (L.)
Toledo—Smith, W. L. (C.)
Urbana—Gulick, W. D. (L.)
Watseka—Rose, G. W. (L.)
Wheeler—Wishard, R. S. (C.)
Winchester—Fletcher, H. H. (L.)

INDIANA

Ashley—Darnelle, T. E. (L.)
Bloomington—Gardner, F. (M.)
Chalmers—Coyner, A. B. (L.)
Delphi—Carney, J. R. (L.)
Evansville—Frick, H. C. (L.)
Indianapolis—Edwards, S. R. (L.)
Egart, S. L. (C.)
Jackson, F. E. (L.)
Keene, T. B. V. (L. C.)
Leak, S. O. (C.)
Patton, R. (L.)
Truitt, F. L. (L.)
Jeffersonville—Walker, J. H. (C.)
La Fayette—McClelland, D. C. (C.)
Linden—Rhea, J. O. (M.)
Logansport—Hare, J. H. (L.)
Manilla—Inlow, W. D. (L.)
Redkey—Markeley, H. W. (L.)
Rushville—Green, F. H. (C.)
Green, L. M. (C.)
Valparaiso—Young, S. J. (L. C.)
Warsaw—Truelove, A. O. (L.)
Westville—Nelson, E. G. (L.)

IOWA

Ames—Bush, E. B. (M.)
Andrew—Rantz, W. L. (L.)
Burlington—Schaefer, P. H. (C.)
Cherokee—Pennington, L. E. (L.)
Columbus Junction—Hubbard, F. A. (L.)
Council Bluffs—Bellinger, S. B. (L.)
Dubuque—Lewis, E. R. (L. C.)
Emmetsburg — Brereton, H. L. (L.)
Fort Dodge—Carver, W. F. (C.)
Iowa City—Von Lackum, H. L. (L.)
Yoder, E. C. (L.)
Jefferson—Hamilton, B. C., Jr. (L.)
Keswick—Harlan, C. D. (C.)
Maynard—Baker, J. E. (L.)
Remsen—Hombach, W. H. (L.)
Shenandoah—Barnes, B. S. (L.)
Truro—Winter, M. D. (L.)
Washington—Masson, H. F. (L.)
Waukon—Morehouse, C. G. (C.)
Williamsburg—Sinn, I. J. (L.)
Woodward—Darche, A. L. (L.)

KANSAS

Ashton—Beatson, L. M. (L.)
Burlingame—Naylor, N. F. (L.)
Caldwell—Kisecker, D. E. (L.)
Chanute—Hickey, F. R. (C.)
Hudson—Liston, O. (C.)
Independence — Shepard, C. O. (L.)
Maplehill—King, G. A. (L.)
Newton—Peppers, J. L. (L.)
Parsons—Missildine, J. G. (L.)

KENTUCKY

Anchorage—Burnett, E. D. (L.)
Barbourville—Logan, L. (C.)
Bellevue—Keeney, P. G. (C.)
Bowling Green—Blackburn, J. H. (L. C.)
Canmer—Moore, C. H. (L.)
Central City—Tuldesley, H. (L.)
Dayton—Bergmeyer, O. N. (L.)
Elkton—Weathers, E. W. (L.)
Fredonia—Spickard, L. J. (L.)
Harlan—Nolan, J. W. (C.)
La Center—Hahs, J. F. (L.)
Overby, B. C. (L.)
Lexington—Briggs, W. T. (L.)
Louisville—Day, G. H. (M.)
Levi, W. D. (L.)
Lukins, J. B. (L.)
Owen, E. E. (L.)
Lynn Grove—Jones, C. H. (L.)
Mayfield—Belote, L. (L.)
Mays Lick—Yancy, H. M. (L.)
Newport—Hughes, W. B. (L.)
Sutter, H. A. (L.)
North Fork—Robb, J. J. (L.)
Paris—Stern, M. J. (L.)
Stone—Boland, L. F. (M.)
Webbs—Graham, J. C. (L.)

LOUISIANA

Jackson—Evans, T. W. (C.)
New Orleans—Braud, S. F. (C.)
Carter, P. J. (L.)
Fenno, F. L. (L.)
Haley, J. T. (M.)
Singleton, J. M. (L.)
Stone, R. E. (C.)
Shreveport — Ledbetter, W. M. (L.)

MAINE

Bath—Mullin, S. S. (C.)
Portland—Cousins, W. L. (M.)
Rumford—Stanwood, A. L. (L.)
Waterville—Bisson, N. (L.)

MARYLAND

Baltimore—Akehurst, J. S. (L.)
Baetjer, W. A. (M.)
Bernheim, B. M. (M.)
DeHoff, G. W. (L.)
Evans, J. (L.)
Fenby, J. S. (L.)
Heuer, G. J. (M.)
Hoffman, R. V. (L.)
Jenkins, H. T. (L.)
Jennings, F. L. (L.)
Rauschenbach, C. W. (C.)
Smith, W. H. (C.)
Spencer, H. R. (L.)
Savage—Shipley, F. E. (L.)

MASSACHUSETTS

Boston—Bearse, C. (L.)
Cabot, R. C. (L. C.)
Cannon, W. B. (L. C.)
Chandler, H. B. (L.)
Lyon, A. B. (C.)
Nichols, E. H. (L. C.)
Rogers, W. (M.)
Sooner, L. H. (M.)
Stevens, H. B. (C.)
Cambridge—Cogswell, G. P. (C.)
Graniteville—Sherman, W. H. (L.)
Greenfield—Kemp, M. (L.)
Haverhill—Holbrook, C. A. (C.)
Holyoke—Bigelow, J. B. (L.)
Gabler, G. L. (C.)
Hand, E. P. (L.)
Lynn—Joslyn, A. E. (C.)
Mansfield—Allen, W. H. (C.)
Newton—Hanscom, R. F. (L.)
Pittsfield—Peterson, A. F. (C.)
Springfield—Chereskin, J. L. (L.)
Harriman, D. E. (L.)
Rumrill, S. D. (C.)
West Brookfield—Huyck, C. J. (C.)
Winchester—Cutter, I. T. (M.)
Worcester—Ljungberg, D. G. (L.)

MICHIGAN

Ann Arbor—Breakey, J. F. (M.)
Galbraith, E. G. (L.)
Charlotte—Stealy, S. A. (L.)
Copemish—Huston, R. R. (L.)
Deerfield—Claflin, G. M. (M.)
Detroit—Carey, C. (L.)
Foley, C. J. (L.)
Jentgen, C. J. (L.)
May, E. W. (L.)
Merrill, C. H. (C.)
Northrup, H. E. (L.)
Persley, A. B. (L.)
Rosenthal, J. (C.)
Sutherland, J. M. (L.)
Grand Rapids—Urquhart, R. T. (C.)
Hickory Corners—Singleton, W. A. (L.)
Highland Park—Braley, W. N. (L.)
Jackson—DeMay, C. E. (L.)
Lansing—Rulison, J. G. (L.)
Saugatuck—Walker, R. J. (L.)

MINNESOTA

Albert Lea—Palmer, W. L. (C.)
Fergus Falls—Folsom, S. D. (L.)
Lowry—Sargeant, H. L. (L.)
Minneapolis—Camp, W. E. (L.)
Hall, J. M. (L.)
Hansen, H. C. (L.)
Law, A. A. (L. C.)
Newkirk, H. D. (L.)
Pederson, R. M. (L. C.)
Smith, T. B. (L.)
Montgomery—McKeon, J. O. (C.)
North St. Paul—Cowren, E. W. (L.)
Pine City—Tofte, A. A. (L.)
Rochester—Boothby, W. M. (M.)
Mayo, C. T. (Col.)
Spring Valley—Johnson, C. H. (L.)
St. Paul—Drake, C. B. (L.)
Savage, F. J. (C.)
Wold, K. C. (L.)
Wilmont—Waller, J. D. (L.)

MISSISSIPPI

Canton—Bell, C. G. (C.)
Lambert—McVey, E. J. (C.)
Meridian—Hart, C. (L.)
Shuqualak—Kellis, J. H. (L.)
Torrance—Sayle, D. T. (L.)
Tupelo—Toomer, W. A. (L.)
Winona—O'Cain, E. C. (L.)

MISSOURI

Bernie—Sayre, R. W. (L.)
Cabool—Edens, L. M. (L.)
Columbia—Ravenel, M. P. (L. C.)
Farmington—Watkins, G. L. (L.)
Gallatin—Netherton, E. W. (L.)
Helena—Carpenter, E. H. (C.)
Kansas City—Blakesley, T. S. (M.)
Brewster, R. B. (C.)
Lichtenberg, J. S. (C.)
Lynch, J. C. (C.)
Middlebrook, W. Jr. (C.)
Robinson, G. W. (M.)
La Belle—Wilson, R. E. (C.)
Maryville—Rowlett, H. S. (C.)
Norwood—Ellis, R. V. (L.)
Pattonville—Coleman, H. T. (L.)
Rayville—Gaines, G. W. (L.)
Sedalia—Duckworth, W. H. (L.)
Silex—Barrymore, E. (C.)
Springfield—Dewey, J. E. (C.)
St. Louis—Ferris, J. L. (L.)
Fleischman, J. C. (L.)
Johnson, R. W. (L.)
Krebs, F. J. V. (C.)
Murphy, F. T. (Col.)
Nelson, W. L. (C.)
Pfeffer, F. J. (C.)
Sale, L. (L. C.)
Thompson, J. C. (L.)
Tonelli, G. L. (L.)
York, W. B. (L.)
Young, A. O. (L.)

MONTANA

Belgrade—Braybeal, J. M. (L.)
Broadview—Abbott, F. E. (L.)
Columbus—Gardner, C. A. (L.)
Crow Agency—Townsend, B. I. (L.)

NEBRASKA

Bellwood—McNally, J. M. (L.)
Blue Hill—Bartholomew, P. H. (M.)
Grand Island—McGrath, B. R. (C.)
Lincoln—Metheny, H. B. (L.)
Munger, A. D. (C.)
Newman Grove—Frink, F. L. (C.)
Omaha—Henry, E. C. (M.)
Mick, W. H. (C.)
Talcott, V. V. (L.)
Salem—Smith, A. J. (L.)
Tekamah—Wood, M. (C.)

NEVADA

Ely—Holmquist, W. S. (C.)
Reno—Ostroff, H. (C.)

NEW HAMPSHIRE

Goffstown—Stark, M. A. (L.)
Sanbornville—Eckhardt, J. C. (L.)
Wolfeboro—Clow, F. E. (L.)

NEW JERSEY

Atlantic City—Canning, C. H. (L.)
Davis, W. P., Jr. (L.)
Camden—Becker, C. F. (L.)
Cedar Grove—Snavely, E. H (L.)
Elmer—Reeves, J. F. (C.)
Hoboken—Granelli, M. S. (C.)
Paganelli, J. E. (C.)
Jersey City—Abels, R. N. (L.)
Newark—Abramowitz, A. B. (L.)
Amols, A. (L.)
Epstein, H. B. (L.)
Stahl, A. (L.)
Titus, C. W. (L.)
Paterson—Van Noort, F. J. (L.)
Rahway—Gallaway, G. E. (L.)
Trenton—Seibert, R. S. (C.)

NEW MEXICO

East Las Vegas—Crail, F. H. (L.)
Silver City—Westlake, O. J. (C.)

NEW YORK

Albany—Gorham, L. W (C.)
O'Keeffe, D. F. (L.)
Southwell, J. F. (C.)
Albion—Elson, J. A. (C.)
Broad Channel—Both, J. L. (L.)
Brooklyn—Feller, A. A. (L.)
Goldstein, N. A. (L.)
Kogut, A. (L.)
Lesser, L. M. (L.)
McCaul, N. J. (L.)
Schneikraut, I. S. (L.)
Senger, F. L., Jr. (C.)
Shipley, A. E. (M.)
Buffalo—Fischer, U. A. (L.)
Russell, N. G. (L. C.)
Schuhr, H. C. (L.)
Clinton—MacFarland, E. G. (C.)
Cuba—Bond, T. B. (C.)
Deposit—Axtell, C. M. (L.)
Elmira—Lande, A. (L.)
Tillou, D. J. (L.)
Gloversville—Palmer, R. M. (L.)
Groton—Van Marter J. H. (C.)
Herkimer—Cole, F. S. (M.)
Holley—Nesbitt, C. C. (L.)
Jamaica—Kilcourse, J. J. (L.)
Mount Vernon—Hughes, J. J. (C.)
Johnson, C. W. (L.)
New York—Bailey, P. (Col.)
Beer, E. (M.)
Bishop, F. W. (L.)
Brickner, W. M. (M.)
Burnap, S. R. (M.)
Caldwell, W. E. (C.)
Cole, L. G. (M.)
Compton, H. T. (L.)
Elwyn, H. (C.)
Forbes, H. H. (C.)
Garbat, A. L. (C.)
Girsdansky, J. (M.)
Helmick, P. L. (C.)
Hiss, J. G. F. (L.)
Hunt, J. P. (C.)
Imperatori, C. J. (L. C.)
Isaacs, H. J. (L.)
Klarfeld, H. (L.)
Lee, B. J. (L. C.)
Longcope, W. T. (Col.)
Lutz, C. (L.)
McCullagh, S. (L. C.)
Morgenlender, A. M. (L.)
Nagle, F. (M.)
Rothschild, M. A. (M.)
Safian, J. (L.)
Satterlee, H. S. (L. C.)
Spitzka, E. A. (L. C.)
Valensi, A. (L.)
Westmoreland, F. S. (L.)
Wovschin, W. (L.)
Rochester—Bradstreet, S. W. (C.)
Jones, W. B. (C.)
Vetter, G. V. (L.)
Schenectady—Howland, C. A. (C.)
McPartlon, P. (C.)
Pearson, J. (C.)
Sparkill—Knipp, J. B. (C.)
Syracuse—Alsever, W. D. (M.)
Getman, A. A. (L.)
Moore, B. S. (C.)
Woodhaven—Baetz, W. G. (C.)

NORTH CAROLINA

Burlington—Vernon, C. T. (L.)
Charlotte—Moore, A. W. (C.)
Duke—Ruff, F. R. (L.)
Mars Hill—Stringfield, O. L., Jr. (C.)
Newton—Rowe, H. E. (L.)
Randleman—Tidmarsh, H. W.(L.)
Salisbury—Spencer, F. B. (L.)
Tarboro—Raby, J. G. (L.)
Winston-Salem—Craig, S. D. (M.)

NORTH DAKOTA

Edgeley—Meigs, B. L. (L.)

OHIO

Ada—Neiswander, L. C. (L.)
Akron—Blower, J. G. (C.)
Fox, W. L. (L.)
Read, F. K. (L.)
Alliance—Mutschman, L. F. (L.)
Ashland—Crawford, R. B. (L.)
Barberton—Stepfield, R. E. (L.)
Bristolville — Thompsson, J. E. (L.)
Cincinnati—Critchlow, M. M. (L.)
Majeowsky, L. R. (L.)
Schneider, H. M. (L.)
Cleveland—Beach, P. E. (L.)
Carter, A. T. (L.)
Cowles, E. C. (C.)
Dexter, R. (L. C.)
Gillespie, R. J. (L.)
Lowry, W. F. (L.)
Paul, L. J. (L.)
Robinson, A. S. (C.)
Sexton, F. E. (L.)
Skeel, R. E. (M.)
Strauss, A. (L.)
Treister, C. D. (C.)
Wood, F. J. (C.)
Columbus—Mixson, A. H. (L.)
McNerney, J. D. (L.)
Crooksville—Allen, E. D. (L.)
Hamilton—Schell, H. D. (L.)
Hubbard—Minahan, T. A. (L.)
Lima—Sibert, A. V. (L.)
Miamisburg—Hunt, C. W. (M.)
Middlepoint—Edwards, S. A. (C.)
Morrow—Krohn, C. P. (C.)
New Somerset—Schilling, R. W. (L.)
Pioneer—Stratton, F. M. (L.)
Spartanburg—Wrightson, W. O. (L.)
Springfield—Poulton, J. H. (L.)
Steubenville—Saxton, S. W. (L.)
Toledo—Black, E. E. (L.)
Kerr, L. E. (L.)
Moor, D. C. (C.)
Tontogany—Peinert, E. F. (L.)
Washington Court House—Decatur, P. E. (L.)
West Unity—Prouty, H. L. (L.)
White Oak Farm—Sawyer, C. W. (L.)
Xenia—McClellan, B. R. (C.)
Youngstown—Clark, C. R. (L. C.)
Morris, C. F. (C.)

OKLAHOMA

Bartlesville—Koppenbrink, W. E. (L.)
Sutton, F. R. (C.)
Charleston—Heady, E. E. (L.)
Coalgate—Rushing, F. E. (L.)
Fargo—Patterson, L. (C.)
McAlester—Shaw, C. C. (L.)
Nash—Roberts, D. D. (L.)
Oklahoma City—Davis, S. C. (C.)
Porum—Farris, R. C. (L.)
Sisakwa—Weeks, H. J. (L.)
Shawnee—Hughes, J. E. (C.)
Tulsa—Brown, P. R., Jr. (C.)
McDonough, R. G. (L.)
Velma—Thomasson, E. B. (L.)
Vion—Morris, C. H. (L.)

OREGON

Portland—Knox, W. S. (M.)
Roberts, L. O. (L.)
Shoot, H. E. (L.)
Riddle—Fawcett, A. J. (L.)

PANAMA

Bocas del Toro—McLean, I. W. (C.)

PENNSYLVANIA

Allentown—Arner, O. D. (C.)
Altoona—Bancroft, J. W. (L.)
Avalon—Elliott, A. H. (C.)
Berwyn—Aiken, T. C. (L.)
Bryn Athyn—Olds, C. L. (C.)
Carrick—Harsha, J. V. (C.)
Clark Mills—Mills, T. D. (L.)
Coalport—Hoke, B. H. (C.)
Columbia—Reeser, R. (C.)
Donora—Furlong, R. G. (L.)
Dormont—Rohrkaste, W. C. (L.)
Dorrancetown — Thomas, F. D. (L.)
Erie—Belding, J. E. (C.)
Boughton, G. C. (M.)
Kemble, C. C. (L.)
Lasher, L. A. (L.)
Fayette City—Hackett, G. S. (L.)
Freeburg—Long, D. E. (C.)
Glassport—Feeley, J. B. (L.)
Greensburg—Bortz, W. M. (L.)
Harrisburg—Taylor, W. S. (L.)
Joffre—Scott, W. L. (C.)
Mansfield—Doane, J. H. (C.)
McKees Rocks—Davis, J. R. (L.)
Millville—Gemmill, J. R. (L.)
Morris Run—Wilson, W. C. (C.)
New Cumberland—Luten, H. (M.)
Philadelphia—Baldwin, J. H. (C.)
Bardsley, C. A. (L.)
Bartine, C. O. W. (C.)
Bateman, S. C. (C.)
Bergey, D. H. (M.)
Block, F. B. (L.)
Bolling, R. H. (M.)
Coombs, J. N. (C.)
Dutter, G. E. (L.)
Eshleman, R. H. (M.)
Ferry, A. A. (L.)
Fewell, A. G. (C.)
Hitchens, A. P. (M.)
O'Reilly, C. A. (M.)
Purdy, J. (L.)
Reed, H. (L.)
Schafer, C. S. (L.)
Shute, F. R. (M.)
Pittsburgh — Arbuthnot, T. S. (L. C.)
Gangloff, H. M. (L.)
Heard, J. D. (L. C.)
Kelsey, J. S., Jr. (C.)
Kline, R. T. (L.)
Major, R. S. (C.)
Miller, R. T. (L. C.)
Redmond, M. S. (L.)
Williams, V. A. (L.)
Pottsville—Jones, R. R. (L. C.)
Reading—Champlin, R. D. (L.)
Griesemer, W. D. (L.)
Roaring Springs — Grounds, W. L. (L.)
Scranton—Lewis, J. D. (C.)
Ruddy, J. P. H. (L.)
Sharon—Jones, O. A. (C.)
Tyrone—Bradin, C. C. (L.)
Washington—McKennan, J. W. (C.)
Wilkinsburg — McMurray, T. E. (L.)
Willock—Lake, H. S. (C.)
Zelienople—Whittaker, A. E. (L.)

RHODE ISLAND

Block Island—Perry, C. F. (C.)
Providence—Beckett, F. H. (L.)
Messinger, H. C. (L.)

SOUTH CAROLINA

Aiken—Stone, T. C. (C.)
Charleston—Bold, F. H. (L.)
Douglass, J. E. (L.)
Rhett, R. B. (L.)
Chester—Abell, R. E. (C.)
Greenville—Powe, W. H. (C.)
Lancaster—Poovey, G. W. (C.)
McCormick—Fuller, R. M. (C.)
Walterboro—Ackerman, R. (L.)
Whitmore—Woods, T. B. (L.)

SOUTH DAKOTA

Deadwood—Allen, A. G. (C.)

TENNESSEE

Block—Russell, C. (L.)
Chattanooga—Shumacker, L. (M.)
Garyville—Callaher, R. L. (C.)
Kingsport—Kinard, C. S. (L.)
Memphis—Collier, C. (L.)
Meyer, L. L. (C.)
Seligstein, M. B. (L.)
Nashville—Edwards, L. W. (L.)
Glasgow, S. M. (C.)
Trent, L. E. (L.)
Oakdale—Williams, P. S. (L.)

TEXAS

Austin—Mathis, E. G. (C.)
Beaumont—Cobb, C. A. (C.)
Cameron—McGee, D. B. (C.)
Dallas—Smith, H. B. (L.)
Devine—Woods, G. S. (C.)
Donna—Davis, L. M. (L.)
Fort Worth—Gough, R. H. (C.)
Galveston—Cade, W. H., Jr. (L.)
Goree—Woodall, O. L. (L.)
Houston—Hill, J. A. (M.)
Mynatt, A. J. (L.)
La Porte—Griffith, C. W. (C.)
Manor—Jackson, N. R. (L.)
Marshall—Eads, G. L. (L.)
Matado—Hamilton, R. L. (L.)
Palestine—Speegle, A. A. (L.)
Port Arthur—Crumpler, W. E. (L.)
Richmond—Munroe, R. M. (L.)
Sachse—Lyons, E. G. (L.)
San Angelo—Kight, J. R. (C.)
San Antonio—Askew, T. B. (C.)
Sykes, E. M. (L.)
Walthall, T. J. (C.)

UTAH

Salt Lake City—Humphrey, I. K. (C.)
Jellison, R. L. (C.)
Scoyoc, G. V. (C.)
Stigall, C. G. (L.)
Vernal—Christy, G. H. (L.)

VERMONT

Burlington—Crossman, E. O. (C.)
Maynard, R. L. (L.)
Manchester Center—Calahan, L. J. (L.)
Montpelier—Grimes, J. R. (L.)

VIRGINIA

Clifton Forge—Wells, E. D. (L.)
Fairfax—Fletcher, H. (M.)
Gloucester—Stubbs, L. E. (L.)
Grafton—Berkeley, S. B. (L.)
Hopewell—Gill, S. G. (L.)
Midlothian—Tabb, J. L., Jr. (L.)
Norfolk—Redman, N. F. (L.)
Roanoke—Hagan, H. J. (C.)
Keister, W. S. (L.)
Kirk, T. A. (C.)
Richards, L. G. (L.)
Virgilina—Jordan, R. S. (L.)

WASHINGTON

Colfax—Mitchell, W. A. (L.)
Colville—Goetter, R. F. (L.)
Fairfield—Lewis, C. A. (L.)
Fort Steilacom—Keller, W. N. (M.)
Hoquiam—MacDonald, J. F. (L.)
Seattle—Perry, R. W. (M.)
Spokane—Appleton, W. H. (C.)
Hughes, A. P. (L.)
Rose, F. (C.)
Tacoma—Paul, B. E. (L.)
Tenino—Wichman, F. W. (L.)
Toppenish—Rowland, S. J. (L.)

WEST VIRGINIA

Bluefield—Hoge, A. H. (L.)
Clarksburg—Willis, C. A. (L.)
Davis—Daugherty, L. E. (L.)
Elkins—Owens, H. K. (M.)
Elm Grove—Pedicord, R. M. (C.)
Fairmont—Causey, H. D. (C.)
Moundsville—Striebich, J. A. (L.)
Wayne—Keesee, J. R. (C.)
Weirton—Levendorf, I. (L.)
Widen—Miller, J. E. (L.)

WISCONSIN

Darlington—Quinn, R. B. (L.)
Fort Atkinson—Clark, W. T. (M.)
Fremont—Rehling, C. F. (L.)
La Crosse—Flynn, R. E. (L.)
Manitowoc—Donohue, W. E. (L.)
Marshfield—Potter, R. P. (C.)
Milwaukee—Yates, J. L. (L. C.)
Wauwatosa—Maercklein, O. W. C. (L.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Bragg, N. C., from Camp Sheridan, Col. W. M. SMART.

To Camp Knox, Ky., as assistant to camp surgeon, from Camp Sheridan, Major W. O. H. PROSSER.

To Camp Sheridan, Ala., base hospital, from Camp Dix, Lieut. C. R. ATHEY, Ramer.

To Fort McPherson, Ga., from Camp Dix, Capt. T. V. MAGRUDER, Birmingham.

To Newport News, Va., from Camp McClellan, Lieut. J. W. GWIN, Bessemer.

Arizona

To Whipple Barracks, Ariz., from Camp Beauregard, Capt. F. F. MILLER, Miami.

To Williamsbridge, N. Y., from Newport News, Capt. R. E. HERENDEEN, Bisbee.

Arkansas

To Hoboken, N. J., from Carlisle, Lieut. J. B. HESTERLY, Prescott.

California

To Army Medical School, from Camp Greene, Capt. G. B. HAMILTON, Oakland.

To Camp Devens, Mass., base hospital, from Camp Joseph E. Johnston, Major H. S. KEYES, Los Angeles.

To Camp Kearney, Calif., from Canal Zone, Capt. J. N. FORCE, Berkeley. Base hospital, Major C. A. GLOVER, San Francisco.

To San Francisco, Calif., Letterman General Hospital, from Camp Dix, Capt. H. W. WRIGHT, San Francisco; from Camp Kearney, Capt. H. BARKAN, San Francisco; Lieut. J. SWANCOTT, Los Angeles.

To Seven Pines, Va., from Camp Lee, Capt. F. M. TROUT, Los Angeles.

The following orders have been revoked: *To Army Medical School,* for instruction, from Fort Oglethorpe, Capt. J. M. WASTE, San Francisco. *To San Francisco, Calif.,* from Camp Kearney, Major W. C. THOMAS.

Colorado

To report to the commanding general, Western Department, from Camp Lewis, Lieut. G. B. LEWIS, Denver.

Connecticut

To Biltmore, N. C., from Edgewood, Lieut. M. F. CLAFFEY, Naugatuck.

To Williamsbridge, N. Y., from Camp Wheeler, Lieut. C. K. STILLMAN, Mystic.

Delaware

To Washington, D. C., from Otisville, Lieut. B. H. BEELER, Wilmington.

District of Columbia

To Aberdeen, Md., from Camp Dix, Major D. L. HIGH, Washington; from Hoboken, Major T. M. FOLEY, Washington.

To Camp A. A. Humphreys, Va., from Camp Wheeler, Capt. H. W. BARKER, Washington.

To Camp Grant, Ill., base hospital, as commanding general, from Walter Reed General Hospital, Col. W. R. DAVIS.

To Camp Meade, Md., base hospital, from Camp McClellan, Lieut. M. J. HERSCHMAN, Washington.

To Canal Zone, from Surgeon-General's Office, Col. H. C. FISHER.

To Fort Riley, base hospital, from Surgeon-General's Office, Col. G. P. PEED.

To Mineola, N. Y., from Surgeon-General's Office, Lieut.-Col. L. H. BAUER.

To San Juan, P. R., from Army Medical School, Col. E. R. WHITMORE.

To Walter Reed General Hospital, D. C., from Hoboken, Major H. H. KERR, Washington.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Lieut.-Col. J. F. MITCHELL, Washington.

Florida

To Camp Devens, Mass., as commanding officer of base hospital, from Camp Joseph E. Johnston, Lieut.-Col. A. D. DAVIS.

To Camp Jackson, S. C., base hospital, from Camp Greene, Capt. G. DAY, Jacksonville.

The following orders have been revoked: *To Camp Dix, N. J.,* base hospital, from Camp Jackson, Lieut. R. H. KNOWLTON, Petersburg. *To Hoboken, N. J.,* from Camp Dix, Capt. H. C. VON DAHM, Jacksonville.

Georgia

To Camp Beauregard, La., base hospital, from Corpus Christi, Lieut. T. STARR, Calhoun.

To Camp Custer, Mich., base hospital, from Boston, Lieut. J. D. BLACKBURN, Atlanta.

To Camp Holabird, Md., as camp surgeon, from Camp Hancock, Lieut. Col. C. C. HILLMAN.

To Camp Meade, Md. to examine the command for cardiovascular diseases, from Camp Sheridan, Capt. W. R. DANCY, Savannah.

To Fort McPherson, Ga., from Camp Dix, Major F. K. BOLAND, Atlanta.

To report to the commanding general, Southwestern Department, from Camp Joseph E. Johnston, Lieut. L. E. BROWNER, Whigham.

To Rockefeller Institute for instruction, and on completion *to his proper station,* from Camp Benning, Major C. M. O'CONNOR, Jr.; from Colonia, Lieut. G. Y. MASSENBURG, Macon.

To Sheffield, Ala., from Camp McClellan, Lieut. I. C. H. CARST, Carrollton.

Hawaii

To San Francisco, Calif., Letterman General Hospital, from Camp Dodge, Major E. W. BAYLEY, Fort Ruger.

Illinois

To Camp Custer, Mich., base hospital, from Camp Wheeler, Lieut. J. W. MILLER, Chicago; from Rockefeller Institute, Lieut. J. L. WEBB, Chicago.

To Camp Dodge, Iowa, to examine the command for cardiovascular diseases, from Camp Beauregard, Lieut. C. J. McMULLEN, Chicago.

To Camp Gordon, Ga., base hospital, from Camp McClellan, Capt. W. S. CONN, Naperville.

To Camp Grant, Ill., from Camp Lewis, Major W. DeBOER, Chicago. As tuberculosis examiner, from Camp Sheridan, Lieut. C. J. HYSLOP, Chicago.

To Camp Pike, Ark., base hospital, from Camp Logan, Lieut. G. H. ANDERSON, Chicago.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Sheridan, Capt. T. A. BRYAN, Mattoon.

To Chicago, Ill., from Camp Logan, Lieut. O. W. SIMPSON, Peoria; from Rockefeller Institute, Lieut. S. A. SMITH, Chillicothe.

To Fort Oglethorpe, from Camp Wadsworth, Capt. W. H. BUHLIG, Chicago.

To Fort Sheridan, Ill., from Camp Abraham Eustis, Capt. W. H. BURMEISTER, Chicago; from Camp Greene, Lieut. W. B. McCLURE, Evanston; from Camp Meade, Capt. F. P. HORAN, Evanston.

To Governor's Island, N. Y., from Camp Holabird, Lieut. C. C. MOE, Chicago.

To Philadelphia, Pa., from Camp Hancock, Lieut. E. H. SEIFERT, Chicago.

To report to the commanding general, Western Department, from Camp Lewis, Lieut. D. F. O'CONNOR, Chicago.

To Riverside, Calif., March Field, from Sacramento, Capt. W. E. MERCER, Liberty.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Sherman, Capt. C. M. McKENNA, Chicago.

To Washington, D. C., Surgeon-General's Office, from Camp Grant, Lieut.-Col. H. C. MICHIE. Attending Surgeon's Office, from Camp Hancock, Capt. L. J. HUGHES, Elgin.

The following orders have been revoked: *To Army Medical School,* from Fort Oglethorpe, Lieut. J. V. ANDERSON, Chicago. *To Camp Meade, Md.,* base hospital, from Camp Grant, Major F. M. PHIFER, Chicago.

Indiana

To Camp Custer, Mich., base hospital, from Camp Lewis, Lieut. H. S. HIATT, Albion.

To Fort Benjamin Harrison, from Camp Wadsworth, Lieut. E. B. M. CASEY, Attica.

To Fort Des Moines, Iowa, from Camp Dix, Major H. O. BRUGGEMAN, Fort Wayne.

To Pig Point, Va., from Camp Wheeler, Capt. J. W. PAHMEIER, Indian Springs.

To Walter Reed General Hospital, D. C., from Camp Greene, Lieut. E. E. HEATH, Napoleon.

To Washington, D. C., from Camp Sherman, Capt. S. A. CLARK, South Bend.

To West Baden, Ind., from Camp Pike, Capt. L. ROGERS, French Lick; from Fort Riley, Lieut. C. E. BOYD, West Baden.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Lieut. C. R. GRAHAM, Bryant. To Fort Sheridan, Ill., from Camp Fremont, Major F. F. HUTCHINS, Indianapolis. *To Hot Springs, N. C.,* from Camp Zachary Taylor, Lieuts. E. O. DANIELS, Marion; C. G. MACKEY, Whiting.

Iowa

To Camp Dodge, Iowa, from Fort Riley, Major F. L. LOVE, Iowa City; Capt. R. H. GREGORY, Creston.

To Camp Pike, Ark., base hospital, from Camp Cody, Capt. F. H. LAMB, Davenport.

To Fort Benjamin Harrison, from Fort Leavenworth, Lieut. J. I. MARKER, Centerville.

To Fort D. A. Russell, Wyo., as tuberculosis examiner, from Camp Shelby, Lieut. H. S. THOMAS, Oakdale.

To Fort Logan, Colo, to examine the command for nervous and mental diseases, from Fort Leavenworth, Capt. P. B. BATTEY, Independence.

To Philadelphia, Pa., from Camp Wheeler, Capt. J. L. SEABLOOM, Red Oak.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dodge, Iowa,* base hospital, from Camp Dix, Lieut. T. F. E. BESS, Fort Madison.

Kansas

To Canal Zone, from Camp Custer, Lieut. B. WEATHERS, Osawatomie.

To Douglas, Ariz., from Camp McClellan, Lieut. H. L. GOSS, Horton.

To Fort Sheridan, Ill., from Camp Dix, Major C. C. NESSELRODE, Lenexo.

Kentucky

To Camp Zachary Taylor, Ky., base hospital, from Camp Dodge, Lieut. S. J. SMOCK, Glasgow; from Camp MacArthur, Major C. G. LUCAS, Capt. J. K. FREEMAN, Louisville; from Camp Wheeler, Capt. L. H. KERR, Louisville.

Maine

To Camp McClellan, Ala., from Sheffield, Lieut. H. L. LOMBARD, Bridgton.

To report to the commanding general, Northeastern Department, from Camp Joseph E. Johnston, Major B. D. RIDLON, Portland.

Maryland

To Camp Meade, Md., base hospital, from Camp Dix, Lieut. E. G. DAVIS, Baltimore.

To Camp Pike, Ark., base hospital, from Camp Logan, Lieut. B. J. SANGER, Baltimore.

To Fort McHenry, Md., from Camp Dix, Capt. P. WROTH, Hagerstown.

To Fort Oglethorpe, from Camp Sevier, Capt. R. E. YELLOTT, Fallston.

To Philadelphia, Pa., from Fort McHenry, Major R. F. KIEFFER, Hagerstown.

To Walter Reed General Hospital, D. C., from Camp Upton, Lieut. A. M. EVANS, Baltimore.

The following orders have been revoked: *To Camp Sherman, Ohio,* Lieut. F. A. CAMALIER, Leonardtown. *To Hot Springs,* from Camp Zachary Taylor, Capt. T. R. PAYNE, Corbett.

Massachusetts

To Boston, Mass., from Camp Devens, Lieut. S. E. RYAN, Springfield; from Hoboken, Lieut. G. H. BINNEY, Jr., Boston.

To Camp Devens, Mass., base hospital, from Camp Greene, Lieut. R. B. HUNT, Arlington.

To Camp Dix, N. J., base hospital, from Camp Logan, Capt. R. B. OBER, Springfield.

To Camp Lee, Va., base hospital, from Camp Dix, Capt. A. A. FENTON, Norwood.

To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Wadsworth, Capt. M. M. JORDAN, Westboro.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Army Medical School, Lieut. H. E. POWERS, Boston.

To Eastview, N. Y., from Camp Greene, Capt. H. E. CARNEY, Boston.

To Fort Sheridan, Ill., from Fort McPherson, Major H. L. CONNER, Haverhill.

To Governors Island, N. Y., from Washington, Lieut. F. A. MURPHY, Taunton.

To Hoboken, N. J., from Camp Devens, Capt. L. J. MASKELL, Newton.

To Jefferson Barracks, Mo., to examine the command for nervous and mental diseases, from Fort Leavenworth, Capt. R. M. CHAMBERS, Westboro.

To New Haven, Conn., from Camp Devens, Lieut. A. G. C. SCHNACK, Boston.
To Williamsbridge, N. Y., from Camp Greene, Major F. W. PALFREY, Boston.

Michigan

To Camp Custer, Mich., base hospital, from Camp Greene, Capt. H. W. LONG, Escanaba.
To Detroit, Mich., Col. A. McLEAN Detroit; from Camp Dix, Lieut.-Col. B. R. SHURLY, Detroit; from Rochester, Lieut. D. H. McRAE, Mount Pleasant.
To Fort McPherson, Ga., from Camp Joseph E. Johnston, Lieut. A. W. ERKFITZ, Detroit.
To Philadelphia, Pa., from Camp Wheeler, Capt. F. P. BENDER, Caro.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Dix, Capt. J. G. R. MANWARING, Flint.
To Walter Reed General Hospital, D. C., from Surgeon-General's Office, Lieut.-Col. N. B. FOSTER, Ann Arbor.

Minnesota

To Biltmore, N. C., from Rochester, Major L. J. REGAN.
To Camp Devens, Mass., base hospital, from Camp Wheeler, Major G. D. HEAD, Minneapolis.
To Camp Jackson, S. C., base hospital, from Camp Upton, Capt. G. R. DUNN, Princeton.
To Fort Snelling, Minn., from Camp Dix, Capt. H. B. ZIMMERMANN, St. Paul.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Dodge, Capt. A. N. COLLINS, Duluth; from Pittsburgh, Lieut. G. A. MURRAY, Rochester.
To Williamsbridge, N. Y., from Rochester, Major W. P. DAVENPORT.

Mississippi

To report to the commanding general, Southern Department, from Camp MacArthur, Major H. S. LEWIS, Hattiesburg.
To Walter Reed General Hospital, D. C., from Camp Upton, Capt. H. JOHNSTON, Biloxi.
To Washington, D. C., Surgeon-General's Office from Camp Beauregard, Capt. M. C. HENRY, Bentonia.

Missouri

To Camp Jackson, S. C., base hospital, from Plattsburg Barracks, Major G. E. SCRUTCHFIELD, Marshall.
To Camp Meade, Md., base hospital, from Camp McClellan, Capt. F. M. DENSLOW, Kansas City.
To Camp Travis, Texas, from Camp Beauregard, Capt. D. E. SCHMALHORST, St. Louis.
To Camp Zachary Taylor, Ky., base hospital, from Camp Joseph E. Johnston, Lieut. C. C. KLEINSCHMIDT, St. Louis.
To Fort Des Moines, Iowa, from Camp Dix, Capts. F. R. TEACHENOR, H. S. VALENTINE, Kansas City.
To Fort Logan H. Roots, Ark., from Camp Pike, Lieut. E. D. EDWARDS, St. Louis.
To Jefferson Barracks, Mo., from Camp Dix, Lieut. J. L. HUTTON, St. Louis; from Fort Riley, Lieut. W. S. REILLY, St. Louis.
To Newport News, Va., from Biltmore, Capt. C. R. BUREN, Princeton; from Camp McClellan, Capt. J. L. ROBERTS, Kansas City.
To Pig Point, Va., from Camp Wheeler, Lieut. E. V. KRING, St. Louis.

Montana

To Fort Des Moines, Iowa, from Camp Meade, Capt. A. G. FULLER, Missoula.
To report to the commanding general, Southeastern Department, from Camp Joseph E. Johnston, Lieut. G. H. DAVIS, Bew.

Nebraska

To Camp Greene, N. C., base hospital, from Camp Jackson, Capt. C. H. NEWELL, Omaha.
To Fort Crook, Nebr., from Camp Meade, Lieut. E. O. WILSON, Madison.
To Fort D. A. Russell, Wyo., to examine the command for nervous and mental diseases, from Camp Dix, Capt. G. W. DISHONG, Omaha.
To Fort Des Moines, Iowa, from Camp Bowie, Lieut. C. W. WAY, Wahoo.
To Fort Leavenworth, Kan., from Fort Riley, Lieut. A. A. SMITH, Hastings.
To Fort Omaha, Neb., from Camp Dix, Capt. R. S. HART, Schuyler.
To Fort Porter, N. C., from Camp Greene, Capt. L. C. BLEICK, Omaha.

New Hampshire

To Boston, Mass., from Camp Dix, Major H. S. SMITH, Lancaster.
To Camp Devens, Mass., base hospital, from Camp McClellan, Capt. C. F. NUTTER, Nashua.
To Fort Des Moines, Iowa, from Fort Logan H. Roots, Major G. M. WATSON, Manchester.
To Hampton, Va., Langley Field, from Dallas, Major D. R. CHASE, Lebanon.
To Rockefeller Institute for instruction, and on completion *to his proper station*, from Army Medical School, Lieut. A. F. SARGENT, Pittsfield.

New Jersey

To Aberdeen, Md., from Camp Wheeler, Capt. E. GUION, Atlantic City.
To Camp Devens, Mass., base hospital, from Fort Riley, Major D. F. O'CONNOR, South Orange.
To Camp Gordon, Ga., as tuberculosis examiner, from Camp Logan, Lieut. C. ENGLANDER, Cedar Grove.
To Colonia, N. J., from Army Medical School, Capt. H. M. EWING, Montclair.
To Lakewood, N. J., from Camp McClellan, Lieut. J. J. BURNE, Newark.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Colonial, N. J.*, from Plattsburg Barracks, Lieut. G. W. FINKE, Hackensack.
To Washington, D. C., Surgeon-General's Office, from Hoboken, Cols. H. C. FISHER, W. H. MONCRIEF; from Newport News, Lieut. F. N. BUNNELL, Barnegat.

New York

To Biltmore, N. C., from Camp Hancock, Capt. S. B. THOMAS, Brooklyn.
To Camp Meade, Md., base hospital, from Edgewood, Lieut. I. S. STARTZ, New York.
To Camp Pike, Ark., base hospital, from Fort Logan H. Roots, Capt. C. H. SANFORD, New York.
To Camp Sherman, Ohio, as orthopedic surgeon, from Camp Pike, Lieut. F. N. POTTS, Buffalo.
To Camp Upton, N. Y., base hospital, from Camp Jackson, Major W. A. DOWNES, New York; from Camp McClellan, Capt. S. H. DE COSTE, Brooklyn.
To Colonia, N. J., from Camp A. A. Humphreys, Lieut. A. B. PEMSLER, New York; from Camp Dix, Capt. H. A. SMITH, Buffalo; Lieut. H. K. HARDY, Rushford; from Camp Upton, Major F. B. VAN WART, Brooklyn.
To Eastern Department, from Panama Canal Department, Capt. W. L. McFARLAND, New York.
To Fort McHenry, Md., from Camp Dix, Capt. H. B. HUVER, Williamsville; from Camp Hancock, Lieut. P. J. WHITE, Jr., Staten Island.
To Fort Monroe, Va., from Camp Logan, Capt. M. M. LUCID, Cortland.
To Fort Ontario, N. Y., from Camp Grant, Lieut. M. E. STERN, New York.
To Fort Slocum, N. Y., to examine the command for nervous and mental diseases, from Plattsburg Barracks, Capt. C. L. CARLISLE, Albany.
To Fort Snelling, Minn., from Rockefeller Institute, Lieut. J. F. SMITH, Profile House.
To Hoboken, N. J., from Camp Abraham Eustis, Capt. G. W. SIMROLL, Brooklyn.
To Lakewood, N. J., from Camp Joseph E. Johnston, Capt. R. S. TAYLOR, Buffalo; from Madison Barracks, Lieut. A. R. SHIRLEY, New York.
To Otisville, N. Y., from Camp Hancock, Lieuts. W. B. EBELING, Brooklyn, E. GAMRIN, New York; from Camp Sheridan, Capt. H. M. SPOFFORD, Batavia.
To Rockefeller Institute for instruction, and on completion *to his proper station*, from Colonia, Lieut. T. L. McNAMARA, Corning. For instruction in the treatment of infected wounds, and on completion *to Eastview, N. Y.*, from Camp Wheeler, Lieut. G. F. SCUDDER, New York. On completion *to his proper station*, from Fort Snelling, Lieut. B. M. KULLY, New York.
To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major W. M. BRICKNER, New York.
The following orders have been revoked: *To Colonia, N. J.*, from Camp Dix, Capt. H. A. SMITH, Buffalo. *To Fort Oglethorpe* for instruction, Lieut. A. S. BLUMGARTEN, New York.

North Carolina

To Fort McPherson, Ga., from Camp Dix, Capt. W. M. SCRUGGS, Rutherfordton; from Camp Upton, Capt. B. N. JONES, Walnut Cove.
To San Francisco, Calif., from Camp Bragg, Lieut.-Col. D. W. McENERY.
The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. W. J. McANALLY, High Point.

Ohio

To Camp Dix, N. J., base hospital, from Camp Meade, Major R. H. BIRGE, Cleveland.
To Camp Sherman, Ohio, base hospital, from Camp Custer, Lieut. R. H. McKAY, Akron.
To Camp Zachary Taylor, Ky., base hospital, from Camp Shelby, Capt. C. MULKY, Warrensville.
To Columbus Barracks, Ohio, from Camp McArthur, Lieut.-Col. E. F. McCAMPBELL, Columbus; from Fort Riley, Lieut. E. C. NEHLS, South Charleston.
To Detroit, Mich., from Camp McClellan, Lieut. R. E. SINKEY, Toledo; from Camp Upton, Capt. M. A. WAGNER, Lima.
To Fort Benjamin Harrison, from Fort Oglethorpe, Lieut. H. H. WILLIAMS, Dayton.
To Fort McHenry, Md., from Camp Dix, Lieut. C. H. MOSES, Youngstown.
To Fort Sheridan, Ill., from Camp Dix, Capt. H. K. YAGGI, Salem; from Camp Sheridan, Capt. D. W. PHILO, Fremont; from Fort Oglethorpe, Lieut. W. M. LEONARD, Cleveland.
To Fort Snelling, Minn., from Camp Sherman, Lieut. J. B. DOYLE, Cincinnati.
To San Francisco, Calif., from Fort Riley, Lieut. H. W. WILLIAMSON, Toledo.
To Washington, D. C., Surgeon-General's Office, from Cape May, Major J. M. INGERSOLL, Cleveland.

Oklahoma

To Fort Des Moines, Iowa, from Fort Riley, Lieut. J. E. HEATLEY, Carmen.
To Fort Sheridan, Ill., from Camp Sheridan, Capt. O. HOVENDEN, El Reno.
To Williamsbridge, N. Y., from Camp Dix, Capt. G. D. McLEAN, Oklahoma City.

Oregon

To Camp Lewis, Wash., from Camp Meade, Lieut. G. S. NEWSOM, Prineville.
To Fort Sam Houston, Texas, base hospital, from Camp Kendrick, Capt. P. J. KEISER, North Bend.
To Riverside, Calif., March Field, from Vancouver Barracks, Capt. T. H MILLER, Eugene.

Pennsylvania

To Biltmore, N. C., from Camp Greene, Major C. P. BROWN, Glen Olden.
To Camp Abraham Eustis, Va., base hospital, from Camp Greene, Capt. G. G. KALMUTZ, Wilkes-Barre; from Camp McClellan, Lieut. F. B. BLOCK, Philadelphia.
To Camp Sherman, Ohio, base hospital, from Williamsbridge, Major J. R. V. WOLFE, Norristown.
To Camp Wadsworth, S. C., base hospital, from Camp Sheridan, Lieut. J. H. GOLDSTEIN, Pittsburgh.
To Cape May, N. J., from Camp Dix, Major G. H. DORRANCE, Philadelphia.

To Fort McHenry, Md., from Camp Dix, Lieut. J. W. BRANSFIELD, Philadelphia.

To Hoboken, N. J., from Fort McPherson, Lieut. W. P. DODDS, Pittsburgh; from Northeastern Department, Lieut.-Col. J. F. EDWARDS, Pittsburgh.

To Lakewood, N. J., from Rockefeller Institute, Capt. E. A. CAMPBELL, Chester.

To Pittsburgh, Pa., from Camp Dix, Lieut. W. E. GARDNER, Pittsburgh; from Camp McClellan, Capt. H. S. FISH, Sayre.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, from Camp Hancock, Lieut. A. H. JAHN, Pittsburgh. On completion *to his proper station*, from Fort McHenry, Lieut. W. F. WHITE, Wellsboro.

To Washington, D. C., Surgeon-General's Office, from Camp Pike, Capt. R. V. ROBINSON, Pittsburgh.

The following order has been revoked: *To Washington, D. C.*, from Camp Dix, Capt. J. J. SINGER, Greensburg.

Rhode Island

To Army Medical School for instruction, from Camp Dix, Major M. S. DANFORTH, Providence.

To Philadelphia, Pa., from Camp McClellan, Lieut. E. W. MULLIGAN, Providence.

South Carolina

To Boston, Mass., from Camp Sevier, Lieut.-Col. C. E. FRONK.

To Camp Shelby, Miss., from Camp Wadsworth, Capt. T. J. PEAKE, Clinton.

To Newport News, Va., from Camp McClellan, Lieut. T. R. LITTLEJOHN, Sumter.

South Dakota

To Fort Des Moines, Iowa, from Camp Upton, Capt. L. Z. FLETCHER, Montrose.

Tennessee

To Fort McDowell, Calif., to examine the command for nervous and mental diseases, from Fort Leavenworth, Capt. J. P. SCHELL, Nashville.

To Fort McPherson, Ga., from Fort Leavenworth, Capt. G. A. HATCHER, Nashville.

To Fort Oglethorpe, from Camp Dix, Capt. C. P. EDWARDS, Kingsport.

To Newport News, Va., from Camp McClellan, Capt. M. G. BUCKNER, Nashville.

To Oteen, N. C., from Camp Hancock, Capt. J. O. WOODS, Newport.

To Rockefeller Institute for instruction, and on completion *to his proper station*, from Fort McHenry, Lieut. J. H. REVINGTON, Chattanooga.

Texas

To Camp Bowie, Texas, from Camp Dodge, Capt. D. C. WYLIE, Aspermont. Base hospital, from Fort Des Moines, Capt. W. C. DURINGER, Fort Worth.

To Camp Grant, Ill., base hospital, from Camp Dix, Lieut. C. B. YOUNG, Jr., Houston. *To examine the command* for nervous and mental diseases, from Camp Logan, Lieut. F. O. CALAWAY, Austin.

To Camp Lee, Va., base hospital, from Camp Logan, Lieut. R. W. DUNLAP, Palestine.

To Camp Logan, Texas, to examine the command for nervous and mental diseases, from Camp Gordon, Lieut. C. W. CASTNER, Terrell.

To Camp Travis, Texas, base hospital, from Camp Lewis, Major I. L. McGLASSON, Waco.

To Fort McHenry, Md., from Camp Logan, Capt. H. L. WARWICK, Fort Worth.

To Fort McPherson, Ga., from Camp Dix, Lieut. W. M. DICKENS, Greenville.

To Fort Sam Houston, Texas, from Camp Dodge, Major C. H. BYARS, Brownsville. Base hospital, from Camp Hancock, Lieut. W. L. ASKEW, Amarillo; from Camp Wheeler, Lieut. J. V. HOPKINS, Victoria.

To Houston, Texas, Ellington Field, from Camp John Wise, Major J. DIBBLE.

To Middletown, Pa., from Camp Dix, Capt. O. P. GOODWIN, Lamasco.

The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieut. W. H. SMITH, Hondo. *To Camp Kelly*, Texas, Lieut. R. P. GLENN, Abilene.

Vermont

To Camp Sheridan, Ala., base hospital, from Camp Dix, Lieut. J. D. THOMAS, Pownal.

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. R. B. THOMAS, Enosburg Falls.

To Hoboken, N. J., from Mays Landing, Lieut. H. L. TILLOTSON, Groton.

To Plattsburg Barracks, N. Y., from Camp Jackson, Capt. A. D. FINLAYSON, Burlington.

Virginia

To Camp Abraham Eustis, Va., from Camp Lee, Major G. C. BEACH, Jr.

To Camp Lee, Va., base hospital, from Camp Dix, Major R. P. BELL, Staunton.

To Camp Meade, Md., base hospital, from Camp Wadsworth, Lieut. W. H. CRAIG, Richmond.

To Fort McHenry, Md., from Camp Dix, Capt. M. C. LILE, University.

To New Haven, Conn., from Camp Abraham Eustis, Major A. FREER.

To Philadelphia, Pa., from Camp Sevier, Lieut. B. E. STRODE, Amherst.

To report to the commanding general, Southern Department, from Camp Logan, Lieut. A. H. DEEKENS, Lynchburg.

Washington

To Alcatraz, Calif., from Fort Leavenworth, Major A. P. CALHOUN, Seattle.

To Americus, Ga., Souther Field, from Vancouver Barracks, Lieut. H. T. DOUST.

To Army Medical School for instruction, from Camp Dix, Major C. F. EIKENBARY, Spokane.

To Camp John Wise, Texas, from Vancouver Barracks, Major A. H. LEHMAN.

To Camp Lewis, Wash., from San Francisco, Major W. N. KELLER, Tacoma.

To Camp Zachary Taylor, Ky., base hospital, from Camp Dix, Lieut. W. C. KINTNER, Seattle.

To Dallas, Texas, Love Field, from Vancouver Barracks, Lieuts. H. M. ANDREW, S. G. ODOM.

West Virginia

To Jefferson Barracks, Mo., from Camp Abraham Eustis, Lieut. F. W. WIEHE, Wheeling.

To Walter Reed General Hospital, D. C., from Camp Dix, Capt. C. S. COWIE, Martinsburg.

To Washington, D. C., Surgeon-General's Office, from Kingsport, Lieut. S. W. BULL, Spencer.

Wisconsin

To Camp Sheridan, Ala., base hospsital, from Camp MacArthur, Capt. O. A. NELSON, Park Falls.

To Camp Upton, N. Y., base hospital, from Fort Porter, Capt. S. G. PAKE, Haywood

To Chicago, Ill, from Camp McClellan, Lieut. D. H. WITTIE, Hartford.

To Denver, Colo., from Camp A. A. Humphreys, Capt. L. H. FLANCHER, Lomira.

To Fort Des Moines, Iowa, from Camp MacArthur, Capt. F. W. APLIN, Waukesha.

To Washington, D. C., Surgeon-General's Office, from Camp Dix, Major R. H. IVY, Milwaukee.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

State Medical Society Meeting.—The Medical Society of the State of California will hold its annual meeting at Santa Barbara, April 15-17.

Expenditures for Influenza.—Dr. William C. Hassler, city health officer of San Francisco, reported to the supervisors' finance committee that $35,292 had been expended of the $50,000 provided for the relief of needy sufferers during the influenza pandemic.

Conviction Sustained.—The district court of appeals, February 18, confirmed the conviction of Dr. William S. Card, San Francisco, on the second degree murder charge coming out of an alleged illegal operation performed May 21, 1918. Dr. Card was convicted in the superior court, July 9, 1918, and sentenced to imprisonment for an indeterminate term.

Personal.—Dr. Morris Herzstein, San Francisco, sailed for Europe, March 8, on the steamer *George Washington*, to make a study of a number of new surgical problems in the hospitals in London and Paris.——Dr. William C. Hassler, city health officer of San Francisco, has been appointed superintendent of the San Francisco Hospital during the absence of Dr. Richard G. Brodrick, who has been granted leave of absence to supervise the construction and equipment of the new $2,000,000 hospital for Alameda County.——Dr. T. d'Arcy M. Quinn has been appointed city physician of San Francisco.

ILLINOIS

Encephalitis Lethargica.—This disease has now been made notifiable by the Chicago health department and also by the state department of health. One death has occurred at Marseilles, and one in the Children's Memorial Hospital in Chicago.

Smallpox at Salem.—Smallpox is reported to have broken out at Salem, Marion County, the infection being conveyed by the principal of the school, who did not know that he had smallpox. Dr. J. A. Keppleman of the state department of health, Springfield, has been sent to Salem to take charge of the situation.

Personal.—John Wesley Tope, Capt., M. C., U. S. Army, Oak Park, who went overseas with the Thirteenth Engineers, returned to the United States, March 5.——Robert Nelson Lane, Capt., M. C., U. S. Army, Gibson City, returned from overseas, March 5.——Dr. Charles H. Franz, Aurora, after thirty years of practice in Illinois, during which time he was at one time assistant superintendent of the Elgin State Hospital and president of the Fox River Medical Society, has moved to San Francisco, where he is assistant surgeon in the United States Public Health Service.

Influenza Survey.—The department of public health of Illinois during February conducted a house to house canvass of the influenza situation in selected localities in Illinois,

principally in cities whose populations were composed chiefly of miners and their families. The investigation disclosed that the disease was more prevalent among children than adults, contrary to the general impression, and that the duration of the disease among the children was from three to five days, as against from seven to eight days among adults. The mortality among the children was also found to be small, while in adults it was much larger. In some communities from 70 to 75 per cent. of the population had had the disease.

Speedway Hospital.—The final plans for taking over by the United States Public Health Service of the Speedway Hospital have been perfected, and it is expected that the institution will be ready for occupancy by July 1. The revised plans include the changing of the large wards into smaller separate units, and this will involve an additional expense of about $500,000. The scope of the project is much larger than that of a hospital. It is to be a national medical center where the various activities of the United States Public Health Service will unite, and from which the future work of the service of sanitation and hygiene will be carried on. The hospital will contain more than 1,500 beds, and there will also be lecture halls, an extensive museum of hygiene, and sufficient space to admit the segregation of diseases and to afford place for special study.

Chicago

Improvements at the Marine Hospital.—The improvements at the United States Marine Hospital, for which an appropriation of $110,000 was recently made, include a residence for the surgeon to cost $10,000; officers' quarters to cost $20,000, and quarters for attendants and nurses to cost $80,000.

Personal.—James J. McGuinn has returned after six months' work with the American Red Cross in France and Germany. ——Maurice L. Goodkind, Major, M. C., U. S. Army, who is on duty in France with the Fifty-Third Hospital Unit, has been promoted to the rank of lieutenant-colonel.——Eugene Cary, Capt., M. C., U. S. Army, who has been on duty with the Royal Air Forces, has returned to this country.——John Edward Kelley, Capt., M. C., U. S. Army, who has been on duty in France, has returned to Chicago.——Gustavus M. Blech, Major, M. C., U. S. Army, who went overseas as assistant division surgeon of the 33d Division, has been promoted to lieutenant-colonel, M. C., U. S. Army, and is in command of U. S. Army Base Hospital No. 208, which is located near Bordeaux. The hospital has accommodation for 4,000 patients, covers 65 acres of ground, and contains more than 100 barracks and an administration building.——Frederick A. Besley, Lieut.-Col., M. C., U. S. Army, has returned from California.

IOWA

Emergency Hospitals Closed.—The Red Cross emergency hospitals at Storm Lake and Marshalltown, which were opened during the influenza pandemic, have been closed.

New Laboratory for Sanatorium.—A bill calling for an appropriation of $25,000 for a laboratory for the Oakdale Sanatorium near Iowa City has been passed by the state senate. The new building will be a two story, fire-proof structure.

New Officers.—At the annual meeting of the Muscatine County Medical Society held in Muscatine, February 27, the following officers were elected: president, Dr. D. Powers Johnson; vice president, Dr. William H. Johnston, and secretary-treasurer, Dr. William W. Potter, all of Muscatine.

Children's Hospital Ready.—The Hospital for Crippled Children connected with the University of Iowa, Iowa City, is now ready to receive patients and will soon be formally dedicated. At present there are eighty-five patients waiting in the Perkins Ward of the University Hospital. The new hospital will accommodate more than 100 patients.

Personal.—Dr. David E. Beardsley has been appointed associate district surgeon of the Chicago and Northwestern System, at Cedar Rapids.——Daniel J. McCarthy, Major, M. C., U. S. Army, Davenport, a member of the American Red Cross Commission in Serbia, has been given the highest decoration of the Serbian government for his work among soldiers and refugees.——Edwin C. Yoder, Lieut. M. C., U. S. Army, Iowa City who has been on duty with the Medical Corps in France, has returned home.——Dr. John H. Peck, Des Moines, was elected president, and Drs. Herbert R. Sugg, Clinton, Gilford H. Sumner, Des Moines, and William H. Bickley, Waterloo, were elected directors of the Iowa Tuberculosis Association, at the annual meeting held in Des Moines, February 18.——Dr. Emil O. Ficke, Capt., M. C., U. S. Army, Davenport, on duty with the 90th Division, American Expeditionary Forces in France, has returned and resumed practice.——Dr. Walter A. Sternberg, Mount Pleasant, was seriously injured in a collision between automobiles, February 4.

Hospital Authorities Defended.—Judge Charles W. Mullan of the District Court of Iowa recently decided a question of interest to physicians relative to the power of the boards of health to require privately owned general hospitals to accept patients suffering from contagious diseases, which had reached the stage of epidemic in the city of Waterloo. The particular epidemic in question was influenzal pneumonia. The health authorities of Waterloo, acting under the statute which gives municipalities the power of protecting the general welfare of communities by the passage of suitable ordinances and resolutions, passed a resolution declaring the existence of public peril, and sought enforcement of the resolution by tendering to the hospital patients suffering from the disease, and on the refusal of the hospital to receive these patients, brought action for the affirmative equitable relief of enforcement. The hospital authorities challenged the power of the board of health, and challenged its acts further on the grounds that in the enforcement it amounted to taking private property without compensation, and furthermore that the regulation was unreasonable. The court decided the case without reference to the reasonableness, but found under the law that the board of health was without any power such as it proposed to exercise. The result was unconstitutional because it amounted to the taking of private property without compensaton, and held that in any event no decree in such a case could be enforced because of the fact that it required personal services of nurses and attendants which would render the court powerless to execute its decree if rendered.

MARYLAND

Gift to Blinded Soldiers.—Soldiers blinded in war, who are receiving vocational training at United States Hospital No. 7, Evergreen Junior, have received a gift of nearly $3,000 from the Baltimore committee of the Woman's Homeopathic Base Hospital Unit.

Personal.—Dr. Elizabeth Hurdon, Baltimore, who was on the medical staff of the British army behind the lines at Saloniki, and Dr. J. Preston Maxwell, engaged in medical work in China during the various plagues for the last twenty years, both members of the staff of the Johns Hopkins University, gave interesting accounts of their experiences, March 7, at Osler Hall before the Baltimore City Medical Society. ——Dr. William S. Thayer, Baltimore, who returned recently to this country after serving with the United States Medical Corps with the rank of brigadier-general, gave a graphic account of his sojourn in Russia during the revolution of 1917, to the students and nurses of Johns Hopkins Hospital, March 8.

Plans for Health Center.—Plans for the establishment of a health center in northwest Baltimore in connection with the new bureau of child hygiene and infant mortality were discussed at a special meeting of the board of estimates held during the past week. The city health department was allowed a physician at $1,800 a year, with the understanding that he would devote all of his time to the work. The department was also allowed three obstetric nurses at $1,100 a year each, three social service nurses at the same pay, a dispensary clerk at $900, a service woman for a day nursery at $500, and $10,800 for equipment. The board also approved a recommendation from Dr. Mary Sherwood, head of the bureau, that $8,000 be set aside for the employment of eight nurses for child welfare work where most needed, especially in the prevention of summer complaint and pneumonia, and that $2,500 be set aside for the immediate development and running expenses of a day nursery for babies in the general neighborhood of existing city health agencies.

MASSACHUSETTS

Personal.—Harvey Cushing, Col., M. C., U. S. Army, Brookline, director of Base Hospital Unit No. 5, the second Harvard Medical Unit to go overseas, reached New York, February 19, on the U. S. S. *Canopic* from Brest after twenty-one months' service abroad.

Unregistered Practitioner Fined.—Mrs. Minnie Buchsegger, Attleboro, a chiropractor, charged with practicing medicine without registration, is said to have waived exemption in the district court, February 19, and to have been fined $600. She appealed from this decision and was held in bond of $1,000.

MINNESOTA

Influenza.—Deaths in Minnesota during 1918 numbered 31,133, as compared with 23,615 in 1917. Influenza was responsible for 7,260 deaths in 1918. More than 125,000 influenza cases were reported.

Certificates in Public Health Nursing.—The first class of thirteen nurses in the course in public health nursing under the direction of the Minnesota Public Health Association and the University of Minnesota received their certificates at the end of the four months' course, February 13. The course is for the benefit of graduate nurses from accredited training schools and senior nurses in training. The second class began its instruction, March 5.

Personal.—S. Marx White, Major, M. C., U. S. Army, Minneapolis, chief of the medical service in Base Hospital No. 26, spoke at the noonday meeting of the Hennepin County Medical Society, February 26, on "Some Medical Lessons from the War."——Dr. Walter L. Mattick of Deerwood Sanatorium held a free tuberculosis clinic at Aitkin, February 15. ——In the suit brought against Dr. Daniel C. Darrow, Moorhead, by Mrs. P. H. Sorenson, for assault while under medical treatment, in which $20,000 damages were sought, the jury is said to have returned a verdict giving the plaintiff $3,000.—— Warren A. Dennis, Lieut.-Col., M. C., U. S. Army, St. Paul, who was on duty with Base Hospital No. 88, at Langres and Sovenay, France, for five months, returned on the U. S. S. *Rotterdam,* which arrived in New York, February 17.

NEW YORK

Watertown to Have Full-Time Health Officer.—Watertown has appropriated $3,000 for the services of a full-time health officer and $600 for a part-time public health nurse.

Society Opposes Health Insurance.—The Albany County Medical Society, March 4, after a four hours' debate at a special meeting, went on record as opposing any bill embodying the scheme of compulsory health insurance.

Health Department Reunion.—The twelfth annual reunion of the Health Department of Buffalo was held, February 25, and was attended by more than 200 members of the department, former members, and their friends. Dr. Edward Durney was chairman of the occasion.

Chiropractor Convicted.—George N. Devinny, a chiropractor of Albany, is said to have been found guilty of violating the public health law by practicing medicine without a license, and to have been sentenced, March 2, to imprisonment for ten days and to pay a fine of $500. Devinny stated that he had been convicted in 1915 on a similar charge.

New York City

Harvey Society Lecture.—The sixth lecture of the Harvey Society series will be given by Dr. Yandell Henderson at the New York Academy of Medicine, March 29, at 8:30 p. m., on "Physiology of the Aviator."

Another Medical College Admits Women.—New York University and Bellevue Hospital Medical College will admit women on the same basis as men and with full privileges of the college, in September, and will grant them the degree of Doctor of Medicine on graduation. Medical degrees have just been conferred on seventy-seven students who finished their courses three months earlier than usual, owing to the war emergency program adopted last year.

Appeal for Funds to Continue Treatment of Children.—The New York Committee on After-Care of Infantile Paralysis, whose headquarters are at 289 Fourth Avenue, is making an appeal for $75,000, so that the treatment of children who have not yet recovered may be continued. A summary of the work done by the committee shows that 8,720 children have been cared for and 2,913 braces furnished. The entire receipts have been $280,852, of which $278,321 has been disbursed.

Report on Drug Addicts.—James A. Hamilton, commissioner on correction, in his annual report on drug addicts, shows that 240 men and thirty-two women were committeed by the courts during the past year as drug users. Of these, 114 men and sixteen women had never been convicted of crime. Commissioner Hamilton recommends that all drug cases should be committed to a correctional institution instead of to hospitals for treatment, because it is too easy for the addict to get out of a hospital.

Personal.—Dr. Samuel W. Lambert, dean of the College of Physicians and Surgeons in the City of New York for fifteen years, and professor of clinical medicine, has resigned from the faculty of that institution, to take effect on June 30.—— Dr. Frederic Huntington Coerr has returned from foreign service and will resume his practice.——Herbert L. Celler, Major, M. C., U. S. Army, recently arrived in this country after service with the Mount Sinai Hospital Unit in France. ——Harold Neuhof, Lieut., M. C., U. S. Army, who has been overseas since May, 1917, has returned to civil life.——David Lothringer, Capt., M. C., U. S. Army, who has been in the service with the American Expeditionary Forces as surgeon of the Seventh Trench Motor Battalion, has been mustered out of the service.

Annual Report of Mount Sinai Hospital.—The annual meeting of the Society of Mount Sinai Hospital was held, March 3, at which time addresses were made by Col. Howard Lilienthal and Major Edwin Beer, who have recently returned from Base Hospital No. 3, the Mount Sinai Unit, which served in France. It is the intention of the authorities to resume at the earliest possible moment the building program outlined before the war and it is hoped that actual work will be begun in the spring of 1920 and that the new hospital buildings will be completed by the end of the following year. The expenses of the hospital for the year were $652,835, which were covered by receipts of a similar amount, $213,388 of which was contributed by the federation for the support of Jewish philanthropies. Base Hospital No. 3 had a very active service abroad, having cared for as many as 2,800 patients at one time. It was announced that the experimental stage of the cardiac clinic had been passed and it had been regularly incorported as a part of the dispensary, and has been installed in quarters especially designed for it in the children's clinic.

PENNSYLVANIA

New Hospital.—A modern two story brick structure to cost more than $60,000 is to replace the Williamsport Private Hospital, destroyed by fire more than a year ago. An option on the adjoining residence has been secured, and the building will be used as a home for nurses.

Personal.—Dr. Howard L. Hull, Camp Hill, formerly associate chief medical inspector, has been appointed chief medical inspector of the state department of health, succeeding Dr. B. Franklin Royer, Harrisburg.——Dr. John L. Laird, Philadelphia, formerly chief of the genito-urinary dispensaries of the state board of health, has been appointed chief of the laboratory of the state board of health to succeed Dr. James B. Rucker, Jr., Philadelphia.——Dr. B. Franklin Royer, formerly assistant health commissioner of Pennsylvania, and after the death of Dr. Dixon, acting health commissioner of the state, was given the honorary degree of Doctor of Science by Ursinus College, February 20.

Philadelphia

Personal.—Dr. Alexander Sterling has been appointed assistant physician pro tem. in the department of medicine in the service of Dr. S. Solis Cohen, at the Jewish Hospital.—— Dr. S. Leon Gans has been appointed chief of the genito-urinary dispensares of the state to succeed Dr. John L. Laird, resigned.——Dr. S. McClintock Hamill will be one of the three delegates from this country to the international conference on public health and child welfare at Cannes, France, the first week in April. The invitation was extended by Dr. Livingston Farrand, Boulder, of the American Red Cross.—— Dr. Dorothy Child has been appointed chief of the division of child welfare in the state department of health, succeeding Dr. Hamill, resigned. Dr. Child recently returned from France, where she was engaged in Red Cross work.——Drs. George F. Souwers, Charlotte S. Farrington, Frederick Van Gunten, Benjamin Brown and Walter M. Miller have been named assistant medical inspectors by the director of public health and charities.

WEST VIRGINIA

Public Health Council.—The West Virginia Public Health Council, presided over by Dr. Vincent T. Churchman, Charleston, announces that it will hold its next examination for licensure, July 15 to 17, at the Hotel Huntington.

Health Officers' Conference.—The next conference of health officers of West Virginia will be held at the Hotel Chancellor, Parkersburg, April 23, under the chairmanship of Dr. Samuel L. Jepson, state health commissioner and secretary of the state public health council.

CANADA

New Medical Bill Not Considered.—As no mention of the new medical bill was made in the lieutenant-governor's address before the Ontario legislature, it is feared it will not

be dealt with this season, and if introduced at all, will most probably be withdrawn.

New Military Hospital Opened.—The new orthopedic headquarters for Canada Military Hospital was formally opened in Toronto, March 1. Lieut.-Col. Charles S. McVicar is the officer commanding. The institution has a capacity of 1,000 patients; eventually the orthopedic hospital at Davisville, North Toronto, will be evacuated, and the remaining patients sent down to the Christie Street Hospital.

Ontario Medical Association.—The thirty-ninth annual meeting of the Ontario Medical Association will be held in Toronto, May 28 to 30, under the presidency of Dr. G. Stewart Cameron, Peterboro. The following are the chairmen of sections: Dr. Edmund E. King, surgery; Dr. John Sheahan, St. Catharines, medicine; Dr. Benjamin P. Watson, obstetrics and gynecology, and Dr. Frank C. Trebilcock, Toronto, ophthalmology, otology, rhinology and laryngology.

Banquet to New Dean.—February 5, a banquet was given at the Ritz-Carlton, Montreal, in honor of Dr. Louis de Lotbinière Harwood, the new dean of the Faculty of Medicine of Laval University, Montreal. About 200 were present, of whom 150 were medical men, and Dr. Rodolphe Boulet, Montreal, president of the College of Physicians and Surgeons of the Province of Quebec, presided. The toast to the guest of honor was proposed by Prof. A. Achille Foucher.

Personal.—Dr. Antoin H. Desloges, Montreal, has been nominated as general medical superintendent of the hospitals for the insane of the Province of Quebec.——Capt. Rene E. A. Weston, Tillsonburg, Ont., who was with the Second Canadian Field Ambulance in France, was signally mentioned in the last dispatches of Marshal Haig.——Major Brefney R. O'Reilly, Toronto, chief medical officer in Canada of the Royal Air Force, has sailed for England.——Dr. Edward A. Lebel, Lieutenant-Colonel in the C. A. M. C., Quebec, who commanded the Canadian hospital at St. Cloud, France, was stricken with paralysis in the latter part of January.——Lieut.-Col. Percy G. Brown, M.B., Toronto, is now an officer of the Order of the British Empire.——Major John F. Burgess, M.B., Owen Sound, Ont., has become a member of the Order of the British Empire. He was wounded in October.——Dr. William H. Jeffs, Toronto, has received word that his son, Dr. Howard B. Jeffs, has been made chief medical officer in charge of the disembarkation of Canadian troops at Portland, Maine.——Dr. Charles E. Treble has been appointed roentgenologist to the Wellesley Hospital, Toronto.——Major C. Edward Cooper Cole, Toronto, has been appointed to the command of the military hospital at Witley, England.——Cols. Herbert A. Bruce and James A. Roberts, Toronto, have arrived home from overseas.

GENERAL

Influenza Squad Commended.—The Secretary of the Navy announced, March 4, that he had officially commended fifty-two enlisted men of the Navy who, during the recent influenza pandemic, voluntarily submitted to experiments at the Naval Hospital, Chelsea, Mass., to aid the surgeons to attempt to secure the cause and method of transmission of the disease and to secure a preventive.

Rockefeller Money for Medical Education.—At a meeting of the General Education Board of the Rockefeller Foundation, appropriations aggregating $1,108,525 were made to various educational institutions throughout the United States. Of this sum the largest amounts were given for medical education, $400,000 being given to Johns Hopkins University Medical School for the endowment of a department of obstetrics, and $150,000 to the Meharry Medical College at Nashville, Tenn.

Warning.—A warning has been issued by some of the medical book publishers regarding M. J. Maddox formerly of Boise, Idaho, who is soliciting orders for books from hospitals, sanatoriums and nurses. Maddox makes it a practice to collect money in advance, and then disappears without giving his customers anything for their money except a pleasant smile. Our readers should be on the lookout for this man and should beware of paying money to any agent with whom they are not personally acquainted.

Posture League Meeting.—The American Posture League held its annual meeting, March 8. After luncheon an address was made on posture in industry, by Mr. Harry Arthur Hoff, consulting engineer, after which clinical demonstration of methods of recognizing and recording posture were given by Dr. Stella S. Bradford of the Adams' Place, Pompton Lakes, N. J., and Miss Jessie H. Bancroft. Moving pictures and other lantern slides on posture were shown and addresses made on the anatomic demonstration of some of the articles resulting from the technical committees of the league, including the chairs.

Dinner for Dr. Purnell.—A dinner in honor of Dr. Caroline M. Purnell, Philadelphia, was given, Saturday evening, March 8, at the Hotel McAlpin, New York, by the American Women's Hospitals, whose commissioner in France she has been for the past five months. The American Women's Hospitals, besides its own hospitals at Luzancy, Seine-et-Marne and La Ferte-Milon, Arrondissement de Chateau-Thierry, Aisne, France, staffed entirely by physicians and dentists from its own membership, has had almost 100 of its members working under the American Red Cross in France, Italy, Serbia and Palestine, and is now supplying physicians for the American Committee for Relief in the near East. Six of their members have recently sailed to take charge of hospitals in Turkey and Asia Minor.

Organization of Red Cross for Peace.—At the February 15 meeting of the American Red Cross in Washington, reorganization was effected for carrying on the work of the organization on a peace basis. The War Council of the Red Cross retired, March 1, and its functions have been transferred to the Central Committee, though four of the members of the War Council remain as members of the executive committee. They are Henry P. Davison, New York; Eliot Wadsworth, Boston; Cornelius N. Bliss, Jr., New York, and George E. Scott, Chicago. Dr. Livingston Farrand, Boulder, formerly president of the University of Colorado, has succeeded ex-President Taft as chairman of the Central Committee. National officers were elected as follows: president, Woodrow Wilson; vice presidents, William H. Taft and Robert W. DeForest; treasurer, John Skelton Williams; counselor, Alexander King, and secretary, Stockton Axson.

Delegation to Rehabilitation Conference Arrives.—A delegation of prominent surgeons and educators from France, Belgium and Italy arrived in New York, March 6, to attend the international conference to be held from March 18 to 22 under the auspices of the Red Cross Institute for Crippled and Disabled Men. The delegates from the Belgian government are: Prof. Louis Alleman of the government institution for cripples at Port Villez, France, and Prof. Edmund Bronsart, director of the school of reeducation for French crippled soldiers at Montpelier, France. The delegates of the French government are: Dr. Morris Bourrilon, president of the Permanent Interallied Committee on War Cripples and director of the French National Institute for Crippled Soldiers, and Dr. Andre Treves. Professor Vittorio will represent Italy. The delegation coming from Canada will be led by Sir James Lougheed, and that from Great Britain will be headed by Major Robert Mitchell.

The Hospital Bill.—The conference report on House Bill 13026, providing hospital facilities for sick and disabled soldiers, sailors and others, has been agreed to in Congress and is now a law. Under it the Secretary of the Treasury (through the United States Public Health Service) is authorized to provide immediate additional hospital and sanatorium facilities for the care and treatment of discharged sick and disabled soldiers, sailors and marines, Army and Navy nurses (male and female), patients of the War Risk Insurance Bureau, merchant marine seamen, seamen on boats of the Missi.sippi River Commission, officers and enlisted men of the United States Coast Guard, officers and employees of the Public Health Service, certain keepers and assistant keepers of the United States Lighthouse Service, seamen of the Engineer Corps of the United States Army, officers and enlisted men of the United States Coast and Geodetic Survey, civilian employees entitled to treatment under the United States employees'.compensation act, and employees on Army transports not officers or enlisted men of the Army now entitled by law to treatment by the Public Health Service. Under this law, the following properties are turned over for the purposes named: hospitals and sanatoriums at Camp Cody, N. M., Camp Hancock, Ga., Camp Joseph E. Johnston, Fla., Camp Beauregard, La., Camp Logan, Texas, and Camp Fremont, Calif.; the nitrate plant, Perryville, Md., and such other hospitals and dispensaries hereafter vacated by the War Department as may be required and found suitable for the needs of the Public Health Service. Among the other hospitals and sanatoriums mentioned are the Battle Mountain Sanatorium at Hot Springs, S. D., General Hospital 15 at Corpus Christi, Texas, the "Speedway" hospital at Chicago, a site for a sanatorium at Dawson Springs, Ky. (to be built), a hospital to be built at Norfolk, Va., one at Washington,

D. C., and others. The Secretary of War is authorized to turn over to the Public Health Service under this act hospital equipment and supplies, motor trucks and cars, etc., for the use of the hospitals and sanatoriums. For the purpose of carrying out the provisions of the act, the sum of about $9,000,000 is appropriated.

FOREIGN

Hookworm in Jamaica.—Dr. Powell Gardner of the Rockefeller Institute, New York, has arrived at Kingston, Jamaica, to engage in a campaign against hookworm disease begun by the local government.

The Kitasato Institute for Infectious Diseases.—The seventh graduation exercises of the Kitasato Institute at Tokyo, Japan, were held recently, thirty-nine graduates being given diplomas by the minister of the interior.

Ambulance Aeroplane Tested.—A 1,000 horse power aeroplane was tested in Paris, March 3, to determine its applicability as an ambulance. During the test, surgeons, hospital equipment and wounded were conveyed.

More Food for Poles.—The American Red Cross, March 6, dispatched from Switzerland a third special train of twenty-one cars loaded with provisions for the Polish people. The train was accompanied by a Swiss military escort.

The Ace Among the Army Surgeons of Italy.—The *Policlinico* states that Dr. C. Rizzo now has the record for military decorations, nine having been conferred on him, including five for deeds requiring exceptional courage.

Health Pad Calendar.—The Italian Red Cross has issued a pad calendar with maxims for individual and communal hygiene on each of the leaves, to be torn off day by day. This *Calendario della Salute* is sold for $1. The Rome headquarters are at the Libreria Mantagazza, via Nazionale 145.

Red Cross on Way to Poland.—The first contingent of the American Red Cross Commission to Poland, left Paris for Warsaw, February 21 and arrived in Warsaw, March 6. It was joined by another group at Berne. The commission is under the command of Walter C. Bailey, Lieut.-Col., M. C., U. S. Army, Boston, and consists of fifty members from all parts of the United States.

Endowed Chairs at the University of Glasgow.—It is reported that the University of Glasgow has received from Mr. William Guthrie Gardiner and Mr. F. C. Gardiner an endowment for three chairs in the university, these being the chairs of bacteriology, organic chemistry and physiologic chemistry. The endowment amounts to £20,000, or $100,000, for each chair, making a total of £60,000, or $300,000.

Red Cross Hospitals in Serbia.—The American Red Cross has already established a hospital at Uskub, under charge of Dr. Daniel J. McCarthy, Davenport, Iowa, and at Monastir under the charge of Dr. Regina F. Keyes, Buffalo. Other hospitals will be established in northern Serbia as they may be required. There are also physicians and dentists of the Red Cross at Nish, Belgrade and other points. In the Monastir district there is a special Red Cross commission to train Serbian peasants in American farming and methods, and to demonstrate to them the benefit of American agricultural machinery.

Influenza in Japan.—According to articles in the *Japan Medical World* there was an epidemic of influenza in various parts of Japan during the spring of 1918, although this fact was not published at the time. In October it assumed a pandemic character, and Kanai remarks that it may not be much exaggerated to say that nearly the entire populace was infected. The total number of cases among the soldiers was 25,915, of which 121 terminated fatally. Among the troops in Formosa, China and elsewhere, there were 4,218 cases with only nine deaths. The bacteriologic findings seem to be about the same as those reported elsewhere.

Deaths in the Profession Abroad.—Dr. **L. M. Bossi,** professor of obstetrics at the University of Milan, was assassinated there, January 31, by an oriental. He is known for his instrumental metal dilator for the uterus, and his contention that gynecologic disease is the basis for certain cases of mental impairment.——Dr. **R. Massalongo,** lecturer on medical pathology and neuropathology at the universities of Turin and Padua, chief of the public hospital at Verona, and author of numerous works on familial nervous diseases, on pituitary dystrophy, epilepsy and brain diseases in children, member of various medical societies in Italy and elsewhere and on the board of the Italian Internal Medicine Society.——Dr. **C. W. Sebardt** of Stockholm, who has always taken a leading part in the organization of pharmacists in Sweden and in raising the standard of pharmacies, public health and public welfare in general, aged 77. He was a member of the Swedish Medical Association for fifty-five years and was the delegate from Sweden to various international congresses of pharmacy.

BUENOS AIRES LETTER

BUENOS AIRES, Jan. 27, 1919.

Epidemic of Influenza

When the recent epidemic began to die away even in the more remote parts of the country, the people were alarmed by the appearance of a new focus at the port. The steamer *Demerara* brought some sick people from Santos, and their arrival spread the sickness again on the ship and at the Hotel de Immigrantes. Measures were taken to isolate the cases and the illness was checked. The severe epidemic which broke out in Paraguay and which extended to Misiones had completely declined by the first fortnight in January.

Bubonic Plague in Salta and Jujuy

The distant province of Jujuy situated in the extreme north of the country has been again attacked by the plague. When these small foci were observed, they were quickly isolated, but shortly afterward others appeared among the small towns of the neighboring province of Salta, especially in Rosario de Lerma, Carmen and Chicuana. According to the latest news cases have been observed at the gates of the city of Salta.

The Departamento Nacional de Higiene has sent a medical commission to Jujuy, directed by Dr. de la Sota, who has already returned. At this date another commission directed by Dr. Vaca has been sent to the province of Salta.

Diagnosis of Syphilis from Semen

In a preliminary note, Drs. Widakovich and Sires announce that in the semen of syphilitics they have encountered a high percentage of abnormal spermatozoa, two heads, two tails, etc. These abnormalities might serve in the diagnosis of the disease.

Specific Leukocyte Substances

In a recent work Dr. A. Bachmann affirmed that the leukocytes of immunized animals acquire immunizing properties, and that extracts of them possess a curative power superior to extracts of normal leukocytes.

The "Semana Medica"

The weekly review, the *Semana Medica,* celebrated January 18, with a festival gathering, the twenty-fifth anniversary of its foundation.

Injury of Hospital Medical Staff in Recent Uprising

In inaugurating a general strike recently, certain anarchistic elements sought to impart a revolutionary aspect to it, but in general their propositions met with no echo. However, it proved necessary for the police and the army to repress the isolated foci of rebellion. The public hospitals of the capital had to do an enormous amount of work, and some of the staff were barbarously shot at by the revolutionists. While lending his services, one intern of the hospital Ramos Mejia was hit in the right lung by a bullet. This occurred at the very doors of the hospital.

Personal

The professor of physiology, Dr. H. G. Piñero has had a cerebral attack, and on this account has asked to be relieved of his charge.

MEXICO LETTER

MEXICO CITY, Feb. 23, 1919.

Official Regulation of Private Laboratories

The Departamento de Salubridad has issued orders to the effect that the private laboratories which make a practice of the Wassermann test must comply with certain requirements: They must be in charge of a duly registered physician or veterinarian who has obtained by written application a permit from the public health authorities to open the laboratory. The head of the laboratory must present a certificate signed by two honorable and known persons who guarantee the good faith and special skill of the applicant. If there are assistants in the laboratory, each must be certified in the same manner. The Wassermann test must be done not only with the classic procedure but also by the control technic of Hecht and Jacobsthal, and if necessary, the reaction shall

be determined not only with the blood serum but with the cerebrospinal fluid. The laboratory shall be equipped with all the apparatus and materials required for this class of studies, a list of the same to be sent to the headquarters of the Departamento. This vigilance on the part of the public authorities will be felt quite severely in the private laboratories.

Regulation of Pharmacies

The discovery of the fact that in certain pharmacies the druggists were substituting for the drugs prescribed by the physician others that were less expensive, has called the attention of the Departamento de Sanidad to the necessity for supervision of pharmacies. The drug store which was discovered *in flagrante delictu* has been closed and vigilant supervision has been extended to the others. A plan is now being discussed for official regulation of pharmacies which will provide for drastic measures against fraud, and will effectively guarantee the sacred interests of the public.

Mexico City, March 3, 1919.

Official Inspection of Public Health Service

The president of the Departamento de Salubridad has left for an inspection trip, intending to visit the sanitary bureaus established in the towns along the border and the sea coast towns, to ascertain by personal inspection how these stations are functioning and to correct the deficiencies noted. During his absence, the secretary of the Departamento will assume his work.

Inmates of Hospital Rebel

Not long ago the inmates of the hospital "Morelos," an institution devoted exclusively to the care of prostitutes with venereal diseases, rebelled and assaulted the police guarding the establishment and tried to escape. It was necessary to resort to forcible measures to restrain them, and several police were wounded. This is the third occasion, within a few months, in which events of this kind have occurred. The matter should be investigated to see if the complaints of the patients are justified and whether the cause might be remedied.

Beggars in Mexico

In order to reduce the large numbers of beggars with which the city is swarming, the authorities have set apart one pavilion in the old Belem prison to adapt it for an asylum for beggars where those incapable of self support will be given food and shelter. The children who have no one responsible for them will be sent to industrial schools, the sick to the hospitals, and those who are simply lazy will be compelled to work. This will leave in the Belem asylum only those who are absolutely incapable of self support from their advanced age or other circumstances.

Law to Combat Vagrancy

Among the numerous bills for proposed legislation which the department for industry, commerce and labor is now studying, is one important bill dealing with a question which has been much discussed but has never been settled in this country. The outline of the bill, which will probably be presented for the consideration of congress during its next session, deals with the disfranchisement of habitual vagrants and prostitutes, depriving them of political rights. According to the proposed bill, this will exclude from voting the habitual drunkards, gamblers, and white slavers and those who have been convicted of crimes against common law.

The Consumption of Food

A local paper, the *Excelsior*, has been publishing an estimate of the food consumed by the inhabitants of this city, investigating the amount of foodstuffs imported and dividing the figures by the estimated population, namely, 800,000. According to this calculation, each person living in the City of Mexico consumes daily 90 gm. of meat, 95 gm. of bread, 357 gm. of maize, 65 of frijol, 11 of potato, 6 of rice, 232 of sugar, and 6 of milk. These figures are only approximative, as a large portion of the flour and sugar are used in the manufacture of pastry and candy which are sold outside of the city. The exact number of the inhabitants is not known at present, the last census having been taken in 1910.

Reciprocity Between Mexico and Spain

The statement quoted recently in The Journal from a Mexican exchange to the effect that the reciprocity treaty between Mexico and Japan is the only reciprocity treaty into which this country has entered is incorrect. Mexico concluded a similar arrangement with the Spanish government some ten years ago.

LONDON LETTER

London, Feb. 19, 1919.

Another Epidemic of Influenza

Influenza has broken out again, making a third wave in less than a year. Generally speaking, the disease retains its now classic form, but there are a few minor points of difference. Attacks tend to begin rather less suddenly and less violently, and the local manifestations in the throat and air sinuses have been fewer. The cases that are complicated by pneumonia tend to follow the usual course of local consolidation, crisis, and slow clearing of the chest, common in the years before the war. This is in contrast with the rapidly fatal septic type with acute toxemia characterizing the summer and autumn epidemics, and suggests a distinct decrease in virulence. Of those attacked previously very few have been again infected. Some immunity seems to have been established, for in most cases of reinfection there are only vague rheumatic pains and malaise lasting a few days.

The Influenza Epidemic in South Africa

In the House of Assembly at Cape Town, Sir Thomas Watt, acting prime minister, gave some interesting statistics of the recent influenza epidemic. In two months the epidemic carried off 11,736 Europeans and 127,700 of the natives and colored population. As in England, the epidemic attacked not the old or the weak but the middle-aged and the strong.

An Ununitable Profession

It is an old complaint that the medical profession is ununited on medicopolitical questions, that it is composed of divergent factions, to say nothing of a large body that will join no association of any kind and take no part in politics. That it is ununitable seems to be shown by the failure of a recent attempt at union. The intention of the government to introduce a ministry of health, which is considered to involve important changes in the relations of the profession to the public, has aroused a good deal of apprehension. This was evidently the cause of a mass meeting of the profession under the chairmanship of Prof. William Russell of Edinburgh being called in London by a circular postcard. The postcard stated that these two resolutions would be proposed: 1. "In view of prospective legislation and the proposed establishment of a ministry of health, and having regard to the experience of the medical profession at the time of the passing of the national insurance acts, the time has arrived when a body representative of the whole profession should be established, to watch the interests and be prepared to act in an advisory capacity as occasion demands," and 2. "That a provisional committee be now formed with the object of securing the election of such a body." About 500 physicians attended. Though the fact was not announced, the meeting had evidently been organized by the National Medical Union, a body composed of nonpanel physicians whose object is "to maintain the freedom of the medical profession in its professional and personal relations with the public and to support the public in maintaining a corresponding freedom." The first resolution, given above, was moved by a member of the union, who pointed out that in these days of democratic and socialistic tendencies it would be suicidal for the medical profession to stand aloof when legislation affecting it was proposed. At present there was no body representative of the profession as a whole. He considered that the British Medical Association had lost the confidence of the profession since the great debacle of 1913. He was alluding to the fact that the majority of its members refused to follow the lead of the representative body which condemned the insurance act as derogatory to the profession and asked the profession not to work it. The resolution was opposed by representatives of the British Medical Association, which protested that it was quite capable of doing what was proposed. Let those who thought they could do better join it, and capture the machine and make it work in their way. To found a new body would only further divide the profession. The first resolution was carried by a majority of 182 against 83. To the second resolution an amendment was proposed: "That in view of the urgency arising from contemplated legislation, the 'Parliamentary Medical Committee' be appointed as the provisional committee for drawing up the constitution of a body to develop along the lines indicated by the first resolution." The formation of the "Parliamentary Medical Committee" for the purpose of promoting medical representation in Parliament was announced in a previous letter to The Journal. It was another attempt

to organize and work independently of the British Medical Association. The amendment was opposed on the ground that as a resolution for an entirely new development had been passed, it was inconsistent to extend the powers of an already existing committee. If the Parliamentary Medical Committee wanted larger authority, it ought to appeal to a meeting summoned for the purpose. The amendment was rejected by a majority of 105 against 87. Another amendment was then moved, that "no organization is capable of effectively representing the interests of the medical profession unless it is a registered trade union." This amendment was moved by a representative of the Medical Political Union (a body, as explained in a previous letter, consisting mainly of panel physicians and registered as a trade union). The mover referred, amidst great applause, to the success with which trade unions had made the government "bend the knee." On the amendment being put, the show of hands seemed strongly in favor of it, but the count declared it to be lost by 71 to 73. A recount was demanded from all parts of the hall, but was refused by the chairman, who then found it impossible, because of interruption, to continue the business of the meeting, which he declared closed.

Dr. Cox, secretary to the British Medical Association, in an interview published in the *Morning Post*, said that "the reason why the meeting was such a fiasco was that it was composed of three sections, who are only united in one thing, and that is dissatisfaction with the British Medical Association. First, there is the section which called the meeting, the National Medical Union, whose main object is to fight the national insurance act and all connected with it. Then there is the Medical Political Union, which believes that the only hope for the medical profession is trade unionism. The third body, the Medical and Parliamentary Committee, sprang out of a desire during the recent general election to promote the candidature of medical men for Parliament. The association has held aloof from all these things, because it considers it has the machinery for doing all the great mass of the profession wants in the way of organization, and it would be betraying its principles if it encouraged the setting up of sectional bodies for purposes which the association is quite capable and willing to carry out, with the exception of trade unionism, which the association does not believe in. It has proved on countless occasions that it is both able and willing to defend the interests of the profession. The answer the association would give to the people who were at that meeting, and who evidently did not know what they wanted, is that the proper field for their energies would be inside the association helping to reform it, if they think it needs reforming, rather than give the outside public the idea that the medical profession is a disorganized mob which does not know what it wants."

PARIS LETTER

PARIS, Feb. 13, 1919.

Death of Professor Blanchard

Dr. Raphael Blanchard, professor of parasitology and medical natural history in the Paris faculty of medicine, has just died at the age of 62 years. The death of this noted savant is a distinct loss to French science. He was an authority in matters of human parasitology and was the representative of France at many international congresses. He was born Feb. 28, 1857, at Saint-Christophe (département d'Indre-et-Loire), the grand-nephew of the celebrated French aeronaut, Pierre Blanchard. He began his medical studies in Paris in 1874. In 1876 he became the assistant of Pouchet in the department of zoologic histology. Later, he worked under Paul Bert at the Sorbonne as assistant in physiology. In 1883 he was made a professor of the Paris medical faculty, and in 1897, on the death of Professor Baillon, he was called to the chair of medical natural history in the same faculty. At his request, this chair became the chair of parasitology and medical natural history in 1907. In 1894, he was made a member of the Académie de médecine in the section of therapeutics and medical natural history, and for seven years he has served as secretary. In 1902, Professor Blanchard founded the Institut de médecine coloniale, and was also instrumental in founding an organization to fight the spread of contagion by insects. For twenty years he was secretary general of the Société zoologique de France. In 1889, assisted by Professor A. Milne-Edwards, he organized the Congrès international de zoologie which, since then, has met triennially, and of which he was the permanent secretary general. Besides, he was one of the founders of the Société française d'histoire de la médecine, and was its first president. He founded the *Archives de Parasitologie*, which is published in several languages. He is the author of numerous articles on zoology, anatomy and comparative physiology, anthropology, and history of medicine, but his principal works were on the parasitic origin of disease. He was also the author of a "Traité de zoologie médicale," (1885-1888), and of a book on mosquitoes (1905). He had also begun a "Corpus inscriptionum," a collection of inscriptions and epitaphs, devoted to medicine and biology.

Tribute to French Surgeons

In an eloquent address delivered by Dr. Louis Mourier, under secretary of state for the Service Santé militaire, at the annual meeting of the Société de chirurgie de Paris, he dwelt on the splendid work done by French surgeons during the war, expressing the gratitude both of the army and of the nation. Between March 1 and Nov. 11, 1918, more than one million wounded, sick and gassed persons had been brought in by the Service de Santé and distributed in hospitals. More than one half of this number were able to return to their army detail after several weeks, clinically cured.

Medical Service in the Liberated Regions

At the last meeting of the Association générale des médecins de France, Dr. Thierry, deputy from the *département de la Meuse*, stated that the minister of the liberated regions had decreed that each doctor who will return to his home in the liberated regions will receive a monthly compensation of 500 francs for the succeeding two years. Furthermore, he will be furnished with a vehicle: automobile, side-car, etc. The undersecretary of state of the Servicé de Santé militaire has ordered that the needed instruments be lent to these doctors.

Trephining in a Front Line Serbian Hospital

At a recent meeting of the Société de chirurgie de Paris, Dr. Petrowitch reported statistics in trephining made in a front line Serbian army hospital. Of 152 cases of head wounds received at this hospital, 69 per cent. terminated fatally, more or less rapidly, without having been operated on. In the other cases trephining was done and proved successful in 76 per cent. The patients who did not present an open cerebral lesion, that is to say, without a lesion of the dura mater, all recovered (15 cases). The cases in which there existed wounds of the dura mater and of the brain, gave 63 per cent. of cures (15 recoveries and 9 deaths). These statistics confirm the results obtained on the field of battle by French surgeons.

Children's Welfare Bureau of the American Red Cross

Dr. B. Weill-Hallé of Paris recently reported to the Société de pédiatrie on the activities of the Bureau de l'Enfance of the American Red Cross. The first contingent, under the direction of Dr. W. B. Lucas of the University of California, arrived in France, Aug. 12, 1917. The personnel of this child welfare bureau numbered 450, including doctors, nurses, hygienists, secretaries, lecturers, etc. Its aim was to give immediate aid to the children of the refugees, repatriates, etc., and to seek to offset the loss from the low birth rate of France. The first part of this work was done at Meurthe-et-Moselle, Nelles, Amiens, and Evian, where 65,000 examinations of children were made, at Lyons, etc. To carry out the second part of its program, the bureau carried on an energetic propaganda from three different sides: propaganda by the doctors in the dispensaries and the *consultations de nourrissons;* propaganda by the visiting nurses, and by means of general publicity, making use of tracts, brochures, posters and placards, picture post cards, cinematograph films, addresses and exhibits. As a result of the activities of the devoted corps of nurses under the direction of Miss Ashe, a school for visiting nurses for children has been organized at Lyons and at Paris. Dr. Weill-Hallé also reported on the work done by the Patronage franco-américain de la première enfance in one of the wards of Paris, the XLV-e arrondissement. This organization has taken charge of all the births in this ward, visiting the homes of all the mothers.

Donation of Argentine Physicians to French Medical Relief Fund

The doctors of the Argentine republic have manifested their regard for France by constituting a Comité de secours for their French confrères who have become victims of the war. A subscription fund has been started and 41,500 francs have been turned over to the *Caisse de secours de guerre*, the war relief fund, of the Association générale des médecins de France.

Deaths

Richard Andrews Reeve, Toronto, Ont.; Queens University, Kingston, Ont., 1865; University of Toronto, 1889; aged 76; a specialist on diseases of the eye and ear; lecturer on diseases of the eye and ear in the Toronto School of Medicine from 1872 to 1887, and since 1887 professor of ophthalmology and otology in the University of Toronto; dean of the Faculty of Medicine from 1906 to 1908; for twelve terms president of the Alumni Association of the University; founder of the Reeve Scholarship; a member of the council and senate of the University of Toronto, and of the board of regents of Victoria University, Coburg, Ont.; member of many scientific societies; past president of the British Medical Association, of the Canadian Medical Association and of the Toronto Academy of Medicine; who had conferred on him the honorary degree of LL.D. by the University of Toronto, in 1902 and by McGill University, Montreal, and the University of Birmingham, England, in 1911; one of the most striking personalities in the medical profession of the dominion; an operator of high rank; died suddenly on the street in Toronto, January 27.

Thomas Addis Emmet, New York City; Jefferson Medical College, 1850; aged 91; a member of the Medical Society of the State of New York; who was appointed visiting physician to the Emigrant Refuge Hospital, Ward's Island, in 1851; assistant surgeon to the Woman's Hospital in the State of New York in 1885; surgeon in chief of the institution from 1861 to 1872, and since that time visiting surgeon or consulting physician or surgeon to many public hospitals in New York City; an eminent gynecologist who introduced many new operations and methods of treatment; author of a textbook which has been standard for many years on "Principles and Practice of Gynecology"; a world figure in the fight for Irish home rule; who had conferred on him by the pope the title of Knight Commander of St. Gregory the Great in 1906, and the Laetere Medal by Notre Dame University, South Bend, Ind., as an award to the Roman Catholic whose work had been of the greatest benefit to humanity; died at his home, March 1.

John Waite Mitchell ⊕ Providence, R. I.; Bellevue Hospital Medical College, 1871; aged 70; visiting physician to the Rhode Island Hospital, Providence, from 1875 to 1883; president of the Rhode Island State Medical Society from 1889 to 1891; and of the Rhode Island Emergency and Hygiene Association and president of the Providence Medical Society from 1886 to 1889; trustee and consulting physician to the Providence Lying-In Hospital; and consulting physician to St. Elizabeth's Home and the Rhode Island Catholic Hospital, Providence; died at his home, February 27, from pneumonia.

William Hughes Wells, Philadelphia; Jefferson Medical College, 1891; aged 59; a member of the Medical Society of the State of Pennsylvania; assistant professor of obstetrics in his alma mater since 1913; assistant obstetrician to Jefferson Medical College Hospital; physician to Willing's Day Nursery, Philadelphia; a fellow of the College of Physicians of Philadelphia; author of several works on gynecology and obstetrics; died in the Jefferson Hospital, February 26.

Alfred Whitehead, Baltimore; Baltimore University, 1890; M.R.C.S., Queens College, Birmingham, England, 1871; aged 70; ship surgeon of the Peninsular and Oriental Steamship Company from 1872 to 1878; professor of diseases of children in the Baltimore School of Medicine from 1884 to 1889; and professor of anatomy and clinical surgery from 1889 to 1894; died at his home, February 27, from heart disease.

James L. McLean, Greenwood, Miss.; University of Louisville, Ky., 1875; aged 64; at one time a member and first vice president of the Mississippi State Medical Association; formerly professor of clinical gynecology in the College of Physicians and Surgeons, Memphis, Tenn.; local surgeon of the Illinois Central and Southern railways; died at his home, about February 21, from cerebral hemorrhage.

George E. Schuyleman, Portland, Ore.; Lincoln (Neb.) Medical College, Eclectic, 1904; aged 43; formerly of Glenville, Neb.; who had assumed the practice of a physician at Natko, Kan., during the recent influenza epidemic, and suffered a breakdown, was found hanging from the wheel of an irrigation headgate near Scott's Bluff, Neb., February 24.

Leo Louis Cahill, Springer, N. M.; University of Illinois, Chicago, 1898; aged 47; at one time a member of the New Mexico Medical Society; local surgeon of the Santa Fe System for several years; who broke down from overwork during the influenza epidemic, and was removed first to Raton, N. M., and later to the Woodcroft Hospital, Pueblo, Colo.; died in that institution, January 26.

William Shackelford, The Dalles, Ore.; Jefferson Medical College, 1861; aged 80; a pioneer practitioner of Oregon and Washington; surgeon of the 94th New York Volunteer Infantry during the Civil War, and later surgeon, U. S. Army, until 1870; for several terms a member of the city council of The Dalles, and until recently health officer of the city; died at his home, February 21.

John Chandler Wysor ⊕ Clifton Forge, Va.; College of Physician and Surgeons, Baltimore, 1878; aged 64; a member of the Southern Surgical and Gynecological Association; for many years chief surgeon of the Cresapeake and Ohio Railway Hospital, Clifton Forge, and thereafter consulting surgeon; died at his home, February 23, from pneumonia.

John C. Pickett, Nelsonville, Ohio; College of Physicians and Surgeons, Baltimore, 1896; aged 51; a member of the Ohio State Medical Association; died at his home, February 25, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

William Benjamin Jones ⊕ **Lieut., M. C., U. S. Army,** Rochester, N. Y.; College of Physicians and Surgeons, 1884; aged 57; consulting surgeon to the Willard State Hospital, and the Craig Colony for Epileptics; surgeon to St. Mary's Hospital, Rochester; died suddenly in his automobile, March 1.

Timothy Matlack Cheesman ⊕ Garrison-on-Hudson, N. Y.; College of Physicians and Surgeons of the City of New York, 1878; aged 66; a fellow of the New York Academy of Medicine, and a member of the American Bacteriological Society; died at his home, February 25, from cerebral hemorrhage.

Frederick Mathews, New York City; College of Physicians and Surgeons in the City of New York, 1883; aged 58; a member of the Medical Society of the State of New York; visiting surgeon to the German Polyclinic Hospital, and to the Stuyvesant Polyclinic; died at his home, February 28.

Clarence Edward Farish ⊕ **Lieut., M. C., U. S. Army,** Mobile, Ala.; University of Alabama, Mobile, 1906; aged 36; while driving his automobile over a grade crossing at Brewton, Ala., February 20, was struck by a train and died from his injuries while being taken to a hospital in Mobile.

Hyman Caro ⊕ **Capt., M. C., U. S. Army,** Chelsea, Mass.; Harvard Medical School, 1914; aged 29; formerly a member of staff of the Monson State Hospital, Palmer, Mass.; on duty with the American Expeditionary Forces; died in Mars, France, January 22, from bronchial pneumonia.

Hugh David Ward ⊕ **Asst. Surg., U. S. P. H. S.,** Southport, N. C.; University of Pennsylvania, Philadelphia, 1914; aged 33; on duty in the extracantonment zone around Camp Wadsworth, Columbia, S. C.; died in Spartanburg, S. C., February 18, from pneumonia following influenza.

George Riley Cate, Brookline, Mass.; Bowdoin Medical School, Brunswick and Portland, Me., 1894; aged 51; medical director of the Fisk Hospital, Brighton, Boston; who was struck by a trolley car, February 21; died from his injuries in Fisk Hospital a few hours later.

Julian W. Sloan ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1904; aged 40; assistant professor of clinical medicine in the University College of Medicine, Richmond, Va.; city physician for the west end district of Richmond; died at his home, February 26.

Thomas Benton Dickson, Ramona, Okla.; Memphis (Tenn.) Hospital Medical College, 1895; aged 50; a member of the Oklahoma State Medical Association; also an oil man; was robbed and beaten to death in his room in a hotel in Kansas City, February 22.

John Eberly Kuykendall ⊕ **Capt., M. C., U. S. Army,** Eugene, Ore.; Cooper Medical College, San Francisco, 1912; aged 33; in command of the 361st Ambulance Company, A. E. F.; died in LeMans, France, February 23, from meningitis.

Douglas Blair Mayes ⊕ Americus, Ga.; Vanderbilt University, Nashville, Tenn., 1906; aged 36; secretary of the Sumter County Medical Society from 1915 to 1917; city physician of Americus for several years; died at his home, February 14.

William Wirt Piper, Cleveland; Dartmouth Medical School, Hanover, N. H., 1867; aged 79; assistant surgeon of the Thirteenth United States Heavy Artillery during the Civil War; died at his home, February 24, from heart disease.

⊕ Indicates "Fellow" of the American Medical Association.

Frank B. Florentine ● Saginaw, Mich.; Rush Medical College, 1876; aged 68; surgeon and gynecologist to St. Mary's Hospital and Saginaw General Hospital, and Women's Hospital, Saginaw, Mich.; died at his home, January 31, from diabetes.

George Aloysius Cunningham, Philadelphia; Jefferson Medical College, 1904; aged 39; formerly surgeon to the Western Pennsylvania Hospital, Pittsburgh; died in the University Hospital, Philadelphia, February 21, from pneumonia.

Charles D. Hildebrand, Loganville, Pa.; College of Physicians and Surgeons, Baltimore, 1881; aged 59; a member of the Medical Society of the State of Pennsylvania; died at his home, about February 25, from cerebral hemorrhage.

Britain W. Lockhart, Lula, Ga.; Medical College of Georgia, Augusta, 1883; aged 67; president of the Hall County Medical Society in 1914; also an ordained minister; died at his home, February 11, from pellagra.

Joseph T. Bryan, Louisville, Ky.; Pulte Medical College, Cincinnati, 1883; aged 59; professor of obstetrics and clinical pediatrics, in the Southwestern Homeopathic Medical College, Louisville; died at his home, February 23.

George W. Finch, Los Angeles; California Eclectic Medical College, Los Angeles, 1890; aged 64; professor of materia medica and therapeutics in his alma mater; died at a hospital in Los Angeles, about February 23.

James N. Porter, Boyes, Mont.; for many years a practitioner of Prairie City, Iowa; aged 76; a veteran of the Civil War; died at the home of his daughter in Boyes, February 10, from cirrhosis of the liver.

Abraham H. Lifchutz, Chicago; Barnes Medical College, St. Louis, 1899; aged 49; at one time a member of the Illinois State Medical Society; died at his home, February 28, from mediastinal tumor.

Nathan Ziegenfuss ● South Bethlehem, Pa.; Jefferson Medical College, 1892; aged 69; formerly president of the South Bethlehem board of health; died at his home, about February 24.

Daniel Webster Roberts, St. Augustine, Fla.; Jenner Medical College, Chicago, 1896; aged 52; a colored practitioner; died at his home, about February 21, from pneumonia.

William Gray Adams, Boston; Harvard Medical School, 1897; aged 46; for eight years an instructor in Tufts College Medical School, Boston; died at his home, January 2.

Marriages

JAMES NEWTON ALEXANDER, Capt., M. C., U. S. Army, Roundup, Mont.; chief operating surgeon, Base Hospital No. 39, Base Section No. 7, La Rochelle, France, to Mlle. Germaine Kiere of Antwerp, Belgium, at La Rochelle, February 8.

ANDREW MORTON CARR, JR., Lieut., M. C., U. S. Army, Chicago, on duty with the Presbyterian Hospital Unit, A. E. F., at Limoges, France, to Miss Ruth Carolyn Bennett of Springfield, Ill., at Limoges, recently.

FLOYD ELWOOD KEENE, Capt., M. C., U. S. Army, Philadelphia, on duty with the Pennsylvania Base Hospital No. 20, A. E. F., to Miss Martha Bussiere at Chatel-Cuyon, France, January 27.

JOHN HOWARD HALL, Capt., M. C., U. S. Army, Atlanta, Ga., on duty at Rockwell Field, San Diego, Calif., to Miss Irene Jeanne Hawkins of Sacramento, February 10.

FRANK LEECH, Major, M. C., U. S. Army, Washington, D. C., on duty at Fort Sill, Okla., to Miss Myrtle Adele Tatum of Tatum, Va., February 9, at Greenville, S. C.

HERBERT ALEXANDER BRUCE, Col., F. R. C. S., A. M. S., Toronto, Ont., to Miss Angela Hall, at St. Margaret's Church, Westminster, London, England, February 3.

BENJAMIN HARRISON ADAMS, Asst. Surg., Lieut. (j. g.), U. S. N. R. F., Ocheyedan, Iowa, to Miss Marguerite Schaefer of Highland Park, Ill., recently.

MAURICE CHARLES PINCOFFS, JR., Lieut., M. C., U. S. Army, Chicago, to Miss Katherine Brune Randall of Baltimore, at Catonsville, Md., March 1.

HUGH MILLER MOORE to Miss Elizabeth Beaton, both of Oxford, Ohio, February 19.

MORRIS CASSEL to Miss Edith Kessler, both of Brooklyn, February 16.

The Propaganda for Reform

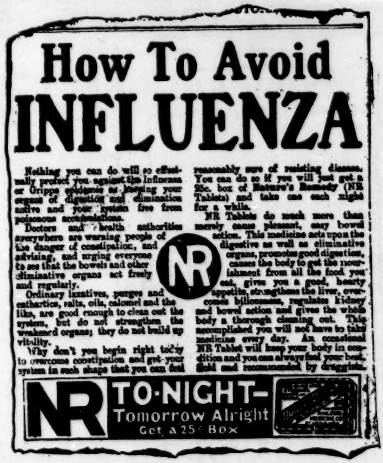
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

NATURE'S REMEDY TABLETS

A. H. CLARK, PH.G., B.S.

From the Chemical Laboratory of the American Medical Association

"Nature's Remedy" is manufactured by A. H. Lewis Medicine Co., St. Louis. It is sold in 25 cent, 50 cent, and $1 packages. Three of the largest size packages were purchased on the open market and examined in the Association's Chemical Laboratory. Nature's Remedy comes in a tin box, containing an advertising circular, a guarantee blank, and 180


How To Avoid
INFLUENZA
Nothing you can do will so effectually protect you against the influenza or Grippe epidemic as keeping your organs of digestion and elimination active and your system free from poisonous accumulations.
Doctors and health authorities everywhere are warning people of the danger of constipation, and advising, and urging everyone to see that the bowels and other eliminative organs act freely and regularly.
Ordinary laxatives, purges and cathartics, salts, oils, calomel and the like, are good enough to clean out the system, but do not strengthen the weakened organs; they do not build up vitality.
Why don't you begin right to-day to overcome constipation and get your system in such shape that you can feel reasonably sure of resisting disease. You can do so if you will just get a 25c. box of Nature's Remedy (NR Tablets) and take one each night for a while.
NR Tablets do much more than merely cause pleasant, easy bowel action. This medicine acts upon the digestive as well as eliminative organs, promotes good digestion, causes the body to get the nourishment from all the food you eat, gives you a good, hearty appetite, strengthens the liver, overcomes biliousness, regulates kidney and bowel action and gives the whole body a thorough cleaning out. This accomplished you will not have to take medicine every day. An occasional NR Tablet will keep your body in condition and you can always feel your best. Sold and recommended by druggists.
NR
TO-NIGHT—
Tomorrow Alright
Get a 25c Box

Of course the epidemic of respiratory disease was capitalized.

tablets. The advertising circular states that Nature's Remedy is a vegetable preparation and "acts on the stomach, liver, kidneys, and bowels," that it contains no digestives, but that its "purpose in dyspepsia, indigestion, bad breath, loss of appetite, sick headache, and rheumatism is to increase the elimination and keep the intestinal tract clean." The greater part of the circular is devoted to the exploitation of other nostrums of the A. H. Lewis Medicine Co.—"nerve pills," a liniment, headache tablets, and "Sans-Pareil" an "emmenagogue and uterine tonic." The list of diseases and indications for which these alleged remedies are recommended on this circular number about fifty.

A booklet issued by the A. H. Lewis Medicine Co. gives a "formula"(?) for Nature's Remedy. It is stated that there are *ten* ingredients entering into its composition. The manufacturers generously name *seven* of these ingredients and admit that "were it not for the vast number of imitators who are ever ready to prey upon the business of established firms and the public we would gladly print the entire formula, for we are even more proud of the three unnamed than we are of the ones given."

The seven ingredients are Burdock, Juniper, Sarsaparilla, Mandrake, Rhubarb, Dandelion and Prickly Ash. There was so

little about these to make one share the feeling of pride expressed by the exploiters that diligent search was made for the unnamed three on the chance that something worthy of mention might be found. Chemical analysis showed the presence of aloes, and traces of some alkaloidal drug. The tablets had the characteristic odor of aloes. Extracted with diluted alcohol, an extract representing 61.2 per cent of the tablet material was obtained. Extracted successively with ether, chloroform, and alcohol, a total of 63.6 per cent extractive was obtained. Extracted with water, an extractive representing 50 per cent was obtained. In every case the extractive resembled aloes in color, odor, and taste and gave the characteristic borax color reaction described in the U. S. Pharmacopoeia.

Since this examination accounted for but one of the mysterious trio of drugs, it was decided to make a microscopic examination, and the aid of E. N. Gathercoal, Instructor in Pharmacognosy in the University of Illinois School of Pharmacy, was sought. The microscopic examination confirmed the chemical findings as to aloes, and also established the presence of powdered cascara sagrada in abundance. Evidence of belladonna root in small quantities was also found and since the chemical examination showed traces of alkaloidal drug present it is possible that the third mysterious stranger is belladonna root. The microscopist's report further stated that rhubarb, as well as all the other seven named drugs, if present at all, are there in such small quantities that no evidence of their presence could be seen.

Let us analyze these analyses: Aloin, the active constituent of aloes, has some of the characteristics of aloes but the dose is much less, namely, ¼ grain. A small proportion of aloin added to the tablets would greatly increase their activity. Further, one of the seven drugs mentioned as being in Nature's Remedy is mandrake, whose active constituent is the resin, podophyllin, one of the most powerful hydragogue cathartics known.

As examination failed to show mandrake present, it was decided to give the tablets a physiologic test. One tablet, taken in the late afternoon according to directions, resulted in profuse watery stools early the following morning, the effect continuing through the day. As the amount of powdered cascara and aloes shown to be present in this tablet could not possibly have such violent hydragogue effect, it therefore seems evident that the mandrake is present as podophyllin, and that aloin is present with the aloes.

A little consideration of the dosage of the drugs mentioned in connection with Nature's Remedy shows clearly the absurdity of such a shotgun mixture, assuming that the drugs mentioned are really there. A table will better convey the idea. The doses given are taken from the U. S. P., N. F., or U. S. Dispensatory, and are average doses:

	Average dose of the drug in grains	Assuming the drugs present as extracts, the dose, in grains, would be about
Burdock	30	6
Juniper berries	60	12
Sarsaparilla	30	6
Mandrake	5	1 (podophyllin ⅙)
Rhubarb	15	5
Dandelion	150	30
Prickly ash	30	6
Aloes	4	2 (aloin ¼)
Cascara	15	3
Belladonna root	1	⅕
	340	71

A tablet containing a single average dose of each of the above drugs would weigh 340 grains if the drugs are simply powdered—as they are claimed to be in Nature's Remedy. If they are represented by their extracts the tablet would still weigh about 70 grains. Yet each Nature's Remedy tablet weighs but 5 grains, of which only 3 grains is medicament! Of course, we should not expect a full dose of each of the drugs, and since there are ten of them, let us say that 1/10 of a dose of each should be present. The tablets should still weigh 34 grains, if powdered drugs are present, and about 7 grains if the extracts are used. Since the seven named by the manufacturers are either not present at all or only in very small amounts, our consideration of dosage can be confined to aloes, cascara, belladonna root, and mandrake. Since the microscopic examination showed Nature's Remedy to be largely powdered cascara, the cathartic effect must be due to some very powerful drug since the tablets contain only about 3 grains of medicament. The dose of aloes is 4 grains or more, therefore there is scarcely room for even a moderate dose of aloes along with the cascara, unless it be present as aloin. Thus we cannot account for the active cathartic effect without assuming the presence of some powerful drug like podophyllin or aloin.

Nature's Remedy then is, essentially, aloes or aloin, cascara, and belladonna with, probably, podophyllin. This is such a common cathartic mixture that pills or tablets containing essentially the same ingredients can be purchased in almost any drug store. The manufacturers of these tablets direct the purchaser to take one every night for a week. They very kindly allow the sufferer (from the effect of the tablets) a few days to recuperate and then suggest that the

DOAN'S KIDNEY PILLS—TESTIMONY FROM THE TOMBS NO. 5

THE NASHUA REPORTER
AND WEEKLY NASHUA POST

NASHUA MAN'S LUCKY FIND.

Will Interest Readers of the Nashua Reporter.

Those having the misfortune to suffer from backache, urinary disorders, gravel, dropsical swellings, rheumatic pains, or other kidney and bladder disorders will read with gratification this encouraging statement by a Nashua man.

(W. A. Moon, retired hotel prop., Depot St. says: "I have used Doan's Kidney Pills off and on for the last seven years. When I have taken cold it has seemed to settle in my kidneys and made my back ache. I have been hardly able to get dressed mornings, because sharp pains have caught me in the small of my back. My kidneys have acted too frequently and the kidney secretions have been highly colored. I have always used Doan's Kidney Pills, procured at the Red Cross Drug Store, at those times and have received excellent results.

Mr. Moon is only one of many Nashua people who have gratefully endorsed Doan's Kidney Pills. If your back aches, if your kidneys bother you, don't simply ask for a kidney remedy, ask distinctly for DOAN'S KIDNEY PILLS, the same that Mr. Moon had, the remedy backed by home testimony. 60 cents at all stores. Foster-Milburn Co., Props. Buffalo, N. Y. "When your back is lame—remember the name."

a grateful nation.

W. A. Moon Passes Away

Our venerable townsman Mr. W. A. Moon, who had been in failing health for many months, passed away at his home Tuesday evening about 9:20. Mr. Moon passed his 83d birthday in December. He was for many years engaged in the hotel business in Nashua and was a veteran of the Civil war. A more extended account of his life will be published next week. At the time of going to press arrangements for the funeral had not been completed.

Two clippings from the *Nashua Reporter* of Feb. 13, 1919. The Doan's Kidney Pills advertisement opines that Nashua citizens "will read with gratification" the "encouraging statement" of Mr. W. A. Moon. The encouragement will doubtless be tempered by the information given on another page of the same paper showing that Mr. Moon had been dead two days when his testimonial appeared.

week of torment be repeated and if this is survived, another few days of rest is allowed before another round of torture and so on "until the bowels become strong enough to do their work." The ill effects of such violent treatment have been enlarged upon so often that it is pernicious to suggest that such a course of treatment be followed.

Correspondence

OCCURRENCE OF PAROTITIS IN INFLUENZAL PNEUMONIA

To the Editor:—I was very much interested in the communication from Dr. Thomas F. Reilly, entitled "Three Signs of Some Value in the Diagnosis of Unusual Cases of Influenza" (THE JOURNAL, Dec. 7, 1918, p. 1935). That part of the article describing involvement of the orifice of Steno's duct was particularly interesting. In two cases of pneumonia following influenza that I treated recently, I paid close attention to the involvement of Steno's duct, and I am able to corroborate the findings of Dr. Reilly. In both of the cases there was a typical lobar pneumonia temperature, and the crisis was reached on the ninth day. The interesting point about the two cases was the occurrence of parotitis, which appeared with the crisis. One case developed overnight, and the swelling was as pronounced as in that of a case of specific parotitis. The following afternoon, in speaking to the nurse in attendance on the other patient, I remarked about having a case complicated by mumps. She said that her patient had a swelling under the right ear. On examination I found another case of parotitis. Both patients suffered intense pain for the first twenty-four hours, and required morphin; but with constant application of the ice cap the temperature, which rose after the swelling, became normal, and recovery was uneventful.

J. MAXEY DELL, M.D., Gainesville, Fla.

AN EARLY REFERENCE IN MEDICAL LITERATURE TO THE RELATION BETWEEN FOCAL INFECTION AND ARTHRITIS

To the Editor:—In the summer of 1914, while on a medical pilgrimage originally planned for European centers, but unexpectedly diverted to Boston (I was one of those who took passage on the North German Lloyd steamer *Kronprinzessin Cecilie* for Plymouth, England, July 29, and the impending outbreak of war, August 3, determined a change of course of this vessel westward to Bar Harbor), I chanced to be in the office of Dr. George Shattuck, where, in looking over an edition of Dr. Benjamin Rush's "Medical Inquiries and Observations," which he had just acquired, my attention was drawn to the following case history appearing under the caption, "An Account of the Cure of Several Diseases by the Extraction of Decayed Teeth":

> Some time in the month of October, 1801, I attended Miss A. C., with a rheumatism in her hip joint, which yielded for awhile to the several remedies for that disease. In the month of November it returned, accompanied with a severe toothache. Suspecting that the rheumatic affection was excited by the pain in her tooth, which was decayed, I directed it to be extracted. The rheumatism immediately left her hip and she recovered in a few days.
>
> I cannot help thinking that our success in the treatment of all chronic diseases would be very much promoted by directing our inquiries into the state of the teeth in sick people, and by advising their extraction in every case in which they are decayed. It is not necessary that they should be attended with pain, in order to produce diseases, for splinters, tumours and other irritants before mentioned often bring on disease and death, when they give no pain and are unsuspected as causes of them.

The edition of Rush in which this appeared had belonged formerly, I believe, to Dr. James Jackson, subsequently to the late Dr. Arthur T. Cabot, from the sale of whose library it was secured by Dr. Shattuck. Two years later, on the occasion of a visit to Sir William Osler at Oxford, I noticed a set of these volumes in his library and called his attention to the account of the case recorded above. It is due largely to his suggestion that I write to THE JOURNAL to invite attention to the occurrence of this early reference to focal infection and secondary arthritis. It may be of literary interest to note here that the delay to do so until now has been due to inability to find the reference again in any of the editions of Rush that I had an opportunity of consulting while abroad. A search for it in the libraries of the Royal College of Surgeons, the Royal Society of Medicine and the British Museum was unavailing, and not until recently did I discover why this reference could not be located in any of the editions accessible to me in London. Through the courtesy of Lieut.-Col. Fielding H. Garrison, M. C., U. S. Army, I was enabled to see the editions of Benjamin Rush's "Medical Inquiries, etc.," in the Surgeon-General's Library at Washington, and then I found that the case history referred to had originally appeared in 1803, in the "Medical Repository" (Vol. VI, Art. XII, p. 285) in the form of a letter written by Rush to the editor. Therefore, only the editions of "Medical Inquiries, etc.," published subsequent to 1803 contained the reference, namely, those of 1815 and 1819. It appears on p. 199, in Vol. I, of the 1815 edition, and on p. 197, Vol. I, of the fifth edition, published in 1819.

F. L. PLEADWELL, Capt., M. C., U. S. Navy.

MADURA FOOT IN CUBA

To the Editor:—In Queries and Minor Notes (THE JOURNAL, No. 16, 1918, p. 1684) appeared a communication about Madura foot (mycetoma) in the United States. In the bibliography appended to the note, no mention is made of a very detailed monograph about the matter, written in 1901 by Drs. Antonio Díaz Albertini and Cárlos M. Desvernine, and read before the Tercer Congreso Pan Americano, held in Havana in February, 1901, and published in the *Revista de Medicina Tropical*, May, 1901, and reprinted in the *Boletín "Sanidad y Beneficencia,"* March-April, 1918, pp. 319-330, in the Section "Historia Médica de Cuba," by Dr. José F. de Pazos, with the photographs of the two cases studied. These cases are of interest as being the first cases of Madura foot found and described in Cuba. Dr. Vincent of Val de Grâce, who studied the histologic findings, sent to him by Dr. Díaz Albertini, concluded that:

1. The photographs were surely of cases of Madura foot.
2. The histologic preparations showed the streptothrix, with the same characters as those revealed in examinations made by him of pus from the nodules of Madura foot.
3. The preparations sent to him by Drs. Albertini and Desvernine were the same as those prepared by himself.

In Cuba, it seems probable that *Discomyces madurae* (Vincent, 1894) was present in negro slaves when the Spanish governed the island. At present it is very rare: since the report of Albertini and Desvernine, there have not been found any other cases of Madura foot in Cuba. Other species of *Discomyces*, such as *Discomyces asteroides* (Eppinger, 1890), have been found two times by Dr. Pazos in the sputum of tuberculous patients. *Discomyces minutissimus* (Guchardt, 1859) is very frequent in cases of erythrasma in Cuba. Dr. Pazos also has found *D. bovis*, *D. israeli* and *D. thibiergii* in cases of abscess of the inferior maxilla in Cuban patients.

DR. W. OCTAVIO MONTORO, Havana, Cuba.
Chief of Press and Publications, Secretaría de Sanidad.

"PHYSICIANS' EXEMPTIONS FOR INCOME TAX"

To the Editor:—Your comments on "Physicians' Exemptions for Income Tax" (THE JOURNAL, Feb. 22, 1919, p. 576) were very instructive—in my own case, a great deal more so than you could have imagined when you published the editorial.

What did it teach me? First, of course, that I have been paying needlessly money as a tax on things that were exempt. But after I had worked out my tax papers and scanned them at leisure, it taught me this much more: I had imagined that I had about a 7,000 dollar practice, being a "true physician, and a poor bookkeeper." On seeing the actual figures, I found that it ran about $5,300 total collections. After deducting

actual business running expenses, I was shocked to find my "7,000 dollar practice" dwindle to a paltry $3,400.

On further observation, I have been shocked at the items of expense. My automobile upkeep is the worst shock. I also keep a horse, which I use when the snow blocks the roads; but as the cold rides exposed to the weather are less inviting than the warm interior of my car, I have often been tempted to plow through the snow with the car. My gasoline consumption has been about 15 miles to the gallon in the summertime; but on investigation I find that a gallon, costing here 40 cents, takes me through the snow less than 5 miles, so hereafter, as the horse eats as much whether I use him or not, I shall use the horse, when it is only a matter of comfort.

Thanks for the lesson you have taught me, and the amount, many times the cost of THE JOURNAL, that you have saved me at one sitting.

E. S. POMEROY, M.D., Winter Quarters, Utah.

GREEK ROOTS AND ENGLISH WORD FORMATION

To the Editor:—I have read with interest the editorial on page 654 of the issue of March 1 entitled "Food and Bacteria —the New Bromatherapy." My classical ear was somewhat offended by this term. As you used the correct Greek derivation in the first column on page 655 in the word "bromatology," the contrast with the second word therefrom, namely, bromatherapy, was acutely accentuated. Since the genitive is always used in introducing English words of Greek origin, I hardly need inform your classical editor that "bromatos" is the correct form for compounded words. In order that you may not fall into similar error in the future, I am taking the liberty of sending you a reprint of my essay on Bromato-Therapy.

Yours in the interest of Homer and Socrates, Æsculapius and Hippocrates, H. W. WILEY, M.D., Washington, D. C.

[COMMENT.—When our correspondent states that "the genitive is always used in introducing English words of Greek origin" the philological ear is offended, for such is not the case. Only the genitive *stem* is used, namely, in this case *βρωματ-*, and not the genitive form *βρώματος*. There are in our medical dictionaries a number of words containing the same error pointed out by the writer, for example, "hemapoiesis," "somatome" and "bromatoxism," found in the "American Illustrated Medical Dictionary." However, we are grateful for the criticism, and are glad to know that we have in our old friend an earnest advocate of linguistic purity in the matter of word formation when Greek roots are involved.—ED.]

German Substitutes in War Surgery.—The *Medical Supplement* compiled by the British Medical Research Committee gives an account of some of the substitutes for surgical materials employed by the Germans during the war. Many soap substitutes were tried, but the soda preparations seem to be the only successful ones. Spirits of wine (containing 70 per cent. alcohol) was used for washing the hands and instruments, care being taken to recover the alcohol. No satisfactory substitute for glycerin was found. American petrolatum was substituted by a jelly distilled from petroleum stiffened with ozokerit. Synthetic rubber was employed in small quantity, but its cost was very high. Rubber recovered from worn out articles and worked over again was not found satisfactory because it was not found sufficiently elastic, but was used for operating gloves with one half pure rubber or synthetic rubber. Rubber drainage tubes were replaced largely by glass and regenerated rubber. Rubber bulbs for nasal and dental work were satisfactorily replaced by bellows-like apparatus. Rubber bands were replaced by spiral springs. Vulcanite dental plates were replaced by aluminum. Steel for instruments degenerated and the nickel plating was thinner and wore off sooner. It was replaced by cobalt, which was worse, wore off sooner and blackened on boiling. Bandage material was replaced by wood fiber, paper, nettle fiber, etc. Wood fiber bandage is strong if dry, but can be sterilized only in steam and tears easily when wet.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

CALIFORNIA: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, April 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

IDAHO: Pocatello, April 1-2. Sec., Dr. Ray H. Fisher, Rigby.

IOWA: Iowa City, March 24-26. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

MINNESOTA: Minneapolis, April 1-4. Sec., Dr. T. S. McDavitt, 741 Lowry Bldg., St. Paul.

MONTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: Philadelphia, June 2-7. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW MEXICO: Sante Fe, April 14-15. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 7-8. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

Florida December Examination

Dr. W. M. Rowlett, secretary of the Florida Board of Medical Examiners, reports the written examination held at Miami, Dec. 2-3, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 11 passed and 4 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Georgia	(1912)	75
Rush Medical College	(1900)	84.3
Louisville Medical College	(1879)	82.5
University of Louisville	(1898)	86.8
University of Maryland	(1902) 88.3; (1918)	81.3
Kansas City Medical College	(1888)	75
St. Louis Medical College	(1889)	83.4
Albany Medical College	(1904)	83.1
Jefferson Medical College	(1889)	85.5
Tennessee Medical College	(1900)	87.5
FAILED		
University of Arkansas	(1907)	67.1
Kentucky School of Medicine of Louisville	(1894)	67.8
Meharry Medical College	(1917)	65.5
University of Havana	(1896)	72

Colorado January Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 7, 1919. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 8 candidates who took the physician's and surgeon's examination, 4, including 1 osteopath, passed, and 4 osteopaths failed. Twenty candidates were licensed on credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago Hospital College of Medicine	(1918)	88.2
University Medical College of K. C.	(1903)	81
University of Toronto	(1911)	75.3

College	Year Grad.	No. Licensed
LICENSED ON CREDENTIALS		
Chicago College of Medicine and Surgery	(1910)	1
Rush Medical College	(1902)	1
Kansas Medical College	(1897)	1
Hospital College of Medicine	(1906)	1
Kentucky School of Medicine of Louisville	(1906)	1
Tulane University	(1897)	1
University of Maryland	(1903)	1
Harvard University	(1895) (1918)	2
Marion-Sims College of Medicine	(1893)	1
St. Louis College of Physicians and Surgeons	(1909)	1
University Medical College of K. C.	(1906)	1
John A. Creighton Medical College	(1917)	1
University of Nebraska	(1904)	1
Columbia University	(1903)	1
Medical College of Ohio	(1896)	1
Starling Medical College	(1896)	1
Medical College of the State of S. C.	(1913)	1
Baylor University	(1912)	1
McGill University	(1890)	1

Book Notices

THE AUTONOMIC FUNCTIONS AND THE PERSONALITY. By Dr. Edward J. Kempf, Clinical Psychiatrist, Saint Elizabeth's Hospital, Washington. Nervous and Mental Disease Monograph Series No. 28. Paper. Price, $2. Pp. 156. New York: Nervous and Mental Disease Publishing Company, 1918.

The author states that this is an endeavor to substitute a "dynamic mechanism that can be visualized by the student" for the *libido* of Freud and Jung. One is tempted to believe that it is an attempt by a freudian to shield the *libido*, in which he believes, from the obloquy of numerous critics and skeptics, by putting on it an organic dress as yet sufficiently new and vague to be quite inoffensive. Whether or not he succeeds is for the reader to decide. As the title indicates, the monograph is an essay on the relations of the autonomic nervous system to psychic processes and personality. But it is more—or less. The thesis sustained is that "the autonomic apparatus dominates the organism and that the affections have their origin in the peripheral functions of this apparatus." The argument is divided into three steps: Part I tries to show that since the process of atrophy of disuse tends to eliminate useless material and movements, and that growth of the useful tends to make permanent necessary material and movements, the architecture of an animal should reveal in a general but reliable manner the fundamental law or process that determined the peculiar form of its existence. Part II is devoted to a consideration of such physiologic data as are suited to demonstrate the dominant nature of the autonomic apparatus. The interpretation of (1) the continuity of postural tonus of the striped muscles as the source of a continuous kinesthetic stream, and of (2) the unstriped muscles as the source of a continuous affective stream, is based principally on the physiologic researches of Sherrington and Langelaan, and on introspective observations of spontaneous reactions. Part III is the primary effort of the monograph, namely, an attempt to obtain recognition for the "fact" that in the higher organisms an affective sensorimotor system (autonomic) exists which created and uses the cerebrospinal or projicient sensorimotor system as a means to keep in contact with the environment in order that the autonomic apparatus may fulfil its biologic career. The monograph is well written, with sincerity, not to say enthusiasm, and contains some admirable information with much ingenious speculation. Undoubtedly it will be of interest to those occupied with the subject it covers.

GLAUCOMA: A TEXTBOOK FOR THE STUDENT OF OPHTHALMOLOGY. By Robert Henry Elliot, M.D., B.Sc., Sc.D. Cloth. Price, $7.50. Pp. 546, with 158 illustrations. New York: Paul B. Hoeber, 1918.

It is safe to say that there has been more advance in the diagnosis and treatment of glaucoma in the past ten or twelve years than in any similar period since the introduction of miotics. A textbook by one who has had much to do with this advance, giving in an able manner a review, summary and critique, is most welcome at this time. Special attention is given to Arthur Thompson's theory of the passage of the aqueous fluid from the anterior chamber into the canals of Schlemm by means of the "suction-pump" action of the pectinate ligament, in which it and the scleral spur are first pulled backward and toward the axis of the eye by contraction of the ciliary muscle, and then moved outward and forward as it is relaxed. In the chapter on etiology, much emphasis is placed on matters pertaining to the dimensions of the eye and the growth of the lens throughout life, as developed by Priestly Smith, and on heredity. Arteriosclerosis is discredited as a cause. The importance of the tonometer as a means of diagnosing is fully recognized by the author, but he lays even more stress on its constant use as a means of prognosis. The last third of the book is devoted to treatment, medical and surgical. The author is opposed to the use of miotics in general and pleads for early operation, quoting de Wecker: "If miotics have never cured a case of glaucoma, they have prevented many glaucoma patients from being cured." De Wecker, too, is credited with having been the first to appreciate the important rôle of the filtering cicatrix in iridectomy cases. The older masters, including von Graefe and de Wecker, were largely dependent on iridectomy, yet their writings do not make out a strong case for it. Naturally Elliot gives a careful description of his own corneoscleral trephine procedure, with its special feature of splitting the cornea from 0.5 to 2 mm. toward the center of the cornea to avoid cutting through any iris root adhesions, etc. But he also gives ample place to the operations of Lagrange, Herbert, Holth and Fergus. Among complications, Elliot gives a good deal of attention to "quiet" iritis. He has had no cases of "late infection," and thinks they may be avoided by thick-based flaps. So much concerning glaucoma is still unsettled that every one is entitled to his own opinion; but the author scarcely gives enough consideration to certain views manifestly opposed to his own. For instance, Jaeger and Schweigger, as well as Schnabel, and of late years von Hippel, have held that there is in glaucoma a "genuine atrophy" of the optic nerve independent of tension; yet of these authorities only Schnabel is quoted. He apparently feels that this situation is met by the statement that the atrophy which continues in some cases after normal tension has been restored is due to some "toxic or other influence." But this explanation is so inadequate as almost to beg the question. So far as we are aware, glaucoma alone, and no other disease, is known to have been present in these cases. Posey's valuable contribution on the use of miotics is not mentioned. Many will be unable to dismiss the bogey of "late infection" after trephining as easily as Elliot does.

By far the most interesting part of the book is the author's extended presentation of the newer intensive studies of the central fields of vision, Bjerrum's arcuate scotoma, going from the blind spot toward the fixation point, Roenne's nasal step, Seidl's sign, etc. He gives an ample discussion of the various theories of the origin and technic of taking such fields, including a description of a special scotometer of his own, and in general he emphasizes once more the wide and growing diagnostic and prognostic significance of these matters.

PAPER WORK OF THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY: A GUIDE FOR ADMINISTRATIVE WORK. By Ralph W. Webster, M.D., Ph.D., Major, Medical Corps, U. S. Army, Instructor, Basic Military Course, Camp Greenleaf. Approved for Publication by Direction of the Surgeon-General of the U. S. Army. Cloth. Price, $5. Pp. 541. Philadelphia: P. Blakiston's Son & Co., 1918.

In this book Dr. Webster has brought together, for the use of medical officers, the most important papers with which they are confronted while attached to organizations in the United States Army. The book is addressed particularly to reserve officers, to whom such a book no doubt would have been of great service had they continued to serve with troops during the recent war. The volume is replete with facsimiles of forms correctly filled out and with numerous suggestions as to the saving of time and trouble in taking care of these forms to prevent their being returned by headquarters for revision or modification. Had the war continued, this book would have ranked as a medical military "best seller"; as it is, it will be extremely useful to those medical officers taking part in the demobilization of the troops.

CLINICAL MICROSCOPY AND CHEMISTRY. By F. A. McJunkin, M.A., M.D., Professor of Pathology in the Marquette University School of Medicine. Cloth. Price, $3.50. Pp. 470, with 131 illustrations. Philadelphia: W. B. Saunders Company, 1919.

The subjects indicated by the title of this book are presented from the laboratory standpoint, clinical descriptions and discussions being left out; hence much of the volume deals with laboratory technic, though the relations of examined materials to the tissues of the body are kept well before the mind of the reader. More than microscopy and chemistry is dealt with, however, the book possessing especially a comprehensive chapter on necropsy technic. The inclusion of small details of technic in the descriptions of laboratory procedures, useful details sometimes omitted from textbooks, and the clearness of the illustrations of apparatus, enhance the value of this volue for instruction of classes and for use as a reference book for routine laboratory technic.

Medicolegal

Treatment of Hemorrhoids by Injection — Pain and Negligence

(Thomas v. Register (S. C.), 96 S. E. R. 517)

The Supreme Court of South Carolina reverses a judgment obtained by the plaintiff, with direction to enter a nonsuit for the defendant, in this action against a physician for an alleged tort or wrongful act to the person, for which a verdict was returned in favor of the plaintiff for both actual and punitive damages. The court says that the alleged tort arose out of the treatment of the plaintiff by the defendant for hemorrhoids. The charge was that the treatment was both negligent and wilful. But the court finds no room to find from the testimony that the defendant was either negligent or wilful in what he did. The only negligent act suggested by the plaintiff's counsel at the bar was the persistent treatment of the patient, notwithstanding the pain that the treatment gave the patient. No testimony was offered that hemorrhoids could be treated without pain. Negligence is not a reasonable inference from the bare fact that pain accompanied the treatment.

There was no testimony tending to prove that the compound injected, or that the instrument used for the injection, was unfit. On the other hand, one of the plaintiff's expert witnesses testified that he "had heard of treatment by injection, and that some reputable physicians use the same now." Moreover, counsel was unable to suggest at the bar any act or any utterance of the defendant that pointed to his wilfulness, and the testimony showed none such. The trial court ought to have directed a nonsuit, and must yet do so.

The trial court excluded all testimony tending to show specific instances in which other persons had been benefited by the treatment that was administered to the plaintiff. The complaint alleged that "the defendant is commonly called and designated as a 'quack and an impostor,' and that he is unskilled and unlearned in his profession, and was and is wholly incapable of relieving or curing piles in and by the manner of treatment which he applied to the plaintiff, and that the defendant well knew such fact." The issue, then, that the plaintiff tendered by his pleading was that the remedy was specious, and the defendant knew the fact. If it be true that the defendant applied the same remedy to others than the plaintiff, which others had a like affliction, and with helpful results, that would tend to disprove the plaintiff's allegation. The testimony was competent.

Effect on Appeal of Death of Physician Enjoined from Local Practice

(Branscome v. Cunduff (Va.), 96 S. E. R. 770)

The Supreme Court of Appeals of Virginia, in dismissing the appeal of defendant Branscome, without a decision on the merits of the case and without costs of either party, on account of his death, says that the defendant, a practicing physician, sold and conveyed his home to the plaintiff, residing and practicing in the same town. The deed expressed a money consideration of $2,250, and contained a provision that for the same consideration the defendant agreed not to locate again within the radius of 15 miles of the town, as a practicing physician. The defendant moved away, but returned within a year from the date of the deed, took up his residence near the town, and resumed the practice of his profession. The plaintiff thereupon brought this suit for an injunction. The result was a decree of the lower court whereby the defendant was perpetually enjoined from practicing medicine and exercising his profession as a practicing physician within a radius of 15 miles from the town. From that decree this appeal was allowed. But after the cause was argued and submitted in the supreme court of appeals, the defendant died. It was insisted by counsel for the appellant that in this particular case the controversy ought to be decided, in order to settle the question of costs, the amount of which was said to be considerable. But the issue on which the cause came to this court had by the death of the defendant become a purely moot question, and nothing remained for the court to do, except to enter an order dismissing the case without costs to either party. This is the settled practice in Virginia and elsewhere generally.

Purpose for Which Roentgenograms May Be Used

(Russell v. Borden's Condensed Milk Co. of Utah (Utah), 174 Pac. R. 633)

The Supreme Court of Utah says that in this personal injury case it was contended that the trial court erred in admitting in evidence certain roentgenograms showing the condition of the plaintiff's hip and hip joint. It was insisted that the roentgenograms had a tendency to mislead the jurors, who were merely laymen and thus possessed no knowledge respecting the injuries to the bone or to the hip or hip joint. If the roentgenograms had been introduced for the purpose indicated by counsel, there would be much force to their contention. A jury of laymen possessing no knowledge or experience respecting the bones and injuries thereto might easily be misled by a mere roentgenogram, by which at the best merely the outline of the bone can be shown. The roentgenograms, however, were not introduced for the purpose indicated by counsel. They were used by the physicians in illustrating their evidence, and were fully explained, and were introduced in evidence only as affording a fuller and clearer understanding by the jury of the physicians' testimony respecting the condition of the plaintiff's injured hip and hip joint. The court committed no error in receiving the roentgenograms for the purpose for which they were received and used.

What the Law Requires of a Physician

(Hesler v. California Hospital Co. et al. (Calif.), 174 Pac. R. 654)

The Supreme Court of California, in reversing a judgment for $2,500 damages that was obtained against the hospital company and the physician it assigned to the case, for alleged malpractice in the treatment of a cold that developed into pulmonary tuberculosis, says that the jury was given, among other instructions, the following:

> 5. To sustain an action it is not necessary to establish gross culpability; mere evidence of want of proper or ordinary care or attention and advice in the discharge of duty by a physician is sufficient to take the case to the jury. 6. Civil malpractice may be either active or passive. It is active when a certain course of treatment is adopted and followed which is not sustained by authorities; it is passive when those things in treatment are omitted which should have been done in order to obtain a result approximating to perfectness. 9. As a general rule, he who undertakes for a reward to perform any work is bound to use a degree of diligence, attention and skill adequate to the performance of his undertaking; that is, to do it according to the rules of the art. 10. The physician must give proper instructions to his patient how to take care of himself, and what diet to adopt; and in case the physician fails to give these instructions he is liable for any injury that results from such failure.

Instruction 5 is to the effect that a physician is liable in damages if he fails to give "proper" advice to his patient. Instruction 10 reiterates this doctrine. Instruction 6 gives the jury to understand that a physician is guilty of malpractice, and liable in damages, if, in treating a patient, he fails to do anything necessary to obtain an approximately perfect result. The law does not require that the instructions and advice given by a physician to a patient should be at all events and beyond question "proper," or that his treatment should be certainly such as to obtain an approximately perfect result. It requires only, first, that he shall have the degree of learning and skill ordinarily possessed by physicians of good standing practicing in that locality; and, second, that he shall exercise reasonable and ordinary care and diligence in treating the patient and in applying such learning and skill to the case. The law takes cognizance of human weakness and liability to err in the application of skill and learning, and it requires only the exercise of reasonable and ordinary care and diligence to avoid error. These instructions require more: they require that the advice given shall be "proper," which implies that no error shall be committed; they require that the physician shall do everything necessary to be done to produce an approximately perfect result; that

he guarantees that his treatment shall be of that quality; whereas, the law demands only that he use reasonable care to attain such approximate perfection. Instruction 9 declares that the physician is bound to use, and of course to have, a degree of skill "adequate" to the performance of his undertaking. The law requires that he have the degree of skill ordinarily possessed by reputable physicians practicing in that locality. This may or may not be "adequate" to the performance of his undertaking, according to the meaning to be given to the word "undertaking." If it was intended to mean that he undertakes a cure, or to produce a result approximating perfection, as stated in Instruction 6, or that he undertakes to use the highest possible degree of skill, the standard is higher than the law requires. The instruction is uncertain on this point, and it may have misled the jury.

The court below in other instructions (not given in the opinion) stated the rule by which the defendants were bound accurately and clearly. There was a clear conflict in the instructions. The supreme court is unable to determine which set of rules the jury followed. The case of the plaintiff on the merits, at best, was not strong. The court cannot say that these instructions were not injurious to the defendant, and did not improperly control the deliberations of the jury in rendering a verdict.

Society Proceedings

FIFTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, March 3, 1919

DR. JOHN M. DODSON, Chicago, in the Chair

Problems in Medical Education

DR. JOHN M. DODSON, Chicago: By means of the effective organization of the American Medical Association, the medical profession of the United States was able to render a magnificent response to the call of the nation for medical officers in the world war, now happily suspended, and its closing chapters being written by the peace congress sitting in Paris.

We ought to be engaged now in the collection of all the necessary data for the coming historian of this epoch. The officers and faculty of every medical school owe to themselves, to their students and alumni, to the medical profession, and to posterity to see that there is gathered and carefully recorded at once, while the events are fresh in mind, all the essential facts pertaining to the participation of the school in the war.

To meet the possible demand for many thousands of medical officers, it seemed necessary to expedite the matriculation and graduation in medicine of as many students as possible. At the request of the Surgeon-General, the time requirement for admission to medical schools was reduced from two years to one and one-third years. Is there any reason why this lower standard should be continued, now that the exigency created by the war no longer exists? The two years' requirement seemed all too short, and that now is the legal requirement for licensure in thirty-two states.

The continuous session, on the four quarter plan, has been in effect for nearly twenty years in at least one medical school, though it had been impossible for a student to complete the legal requirement of attendance in less than forty-two months, because of the regulations of some of the state boards of medical examiners. Is there any logical reason why the student should not be allowed to utilize the summer months in full-time medical work in residence, and thus complete the present requirement of four sessions in three calendar years, his year of internship in a fourth year, and so enter into active practice a year earlier than has been possible under previous regulations? The ruling of the state boards that "twelve months shall intervene between the beginning of any recognized session and the one succeeding it," or that "no two sessions shall begin in the same twelve months" (the restriction has been variously worded), was first promulgated many years ago, under conditions and to meet abuses that no longer exist. Under the four quarter scheme, seven weeks may be provided for vacations, so that attendance on the four quarters is no hardship for the student in good health who desires to avail himself of the privilege.

If approval of the plan is desirable, the state boards should revise their rulings or have the laws amended, if necessary.

Opinions may differ as to the amount of special training that may be indispensable to efficient service in the Medical Corps of the Army, but all will agree that a certain minimal degree of such training is essential, and no future war ought to find the medical profession so unprepared for military service as we were for this war. Moreover, the discipline and training essential to prompt and effective organization and operation of large groups of medical men, such as may be called for in a great earthquake, flood, fire or other great catastrophe, can be secured most effectively by military methods.

The scheme of organizing groups of physicians representing several special lines of practice has been growing steadily in this country for several years. To a degree never before approached in army medical practice, the several specialties were recognized in the medical corps of our army in this war. In the post and base hospitals, both at home and abroad, the medical work was performed by a carefully selected group of specialists, provided with ample facilities and appliances of all sorts for thorough work in diagnosis and treatment. What a source of consolation and confidence this was to those who had sons in the service, liable to be in need at any moment of the most skilled medical attention. The thousands of American physicians who were engaged in these hospitals, and who experienced the profound comfort and satisfaction of thorough, accurate, scientific work, possible only in such groups of consulting specialists, are little likely to return with equanimity to their former custom of attempting individually to cover the whole field of medicine.

Two questions are suggested by these facts: First, should our scheme of medical education be altered so as to encourage and provide for the education of our undergraduates directly for a special line of practice—internal medicine, surgery or ophthalmology, etc.—or should we continue to insist that every student of medicine should first secure a reasonably broad, comprehensive knowledge of general medicine, turning his attention to some exclusive line only when he has had considerable practical experience—at least a year or two of hospital training—in the general field? Second, ought not the public to demand of any physician who presents himself to the community as a "specialist" in any particular field, that is, as one possessed of special, superior knowledge, experience and skill, some proof of such ability as would be given by a license to practice ophthalmology, surgery or what not, issued by a board of competent examiners?

Another phase of medicine that has been brought into great prominence by the experiences of the war is preventive medicine, which has demonstrated its great possibilities as contrasted with curative medicine. For the first time in the history of warfare, with the exception of the Japanese-Russian War, deaths of soldiers from disease have been less than those from the casualties of combat. Had it not been for the sudden onslaught of the most fatal pandemic in modern times, the mortality from disease would have been almost unbelievably low. And this was made possible by the thorough, painstaking enforcement of the hygienic and sanitary methods of modern preventive medicine, which proved effective even under the difficult and distressing conditions of trench warfare. Never has the time-worn adage been more strikingly illustrated that "an ounce of prevention is worth a pound"—aye, many pounds—"of cure."

In five states a year of hospital training is a prerequisite for licensure, and three other states are soon to demand the same preparation; six medical schools now graduate students only after the successful completion of such a fifth year, and two others are soon to do likewise. The very rapid increase in the number of hospitals in the United States has insured

a place for every medical graduate. On the other hand, the conditions of intern service in these hospitals are widely divergent, and in very few of them ideal. The hospital internship, like the so-called training schools for nurses, is still in many hospitals merely a mean device for securing cheap help. In the interests of the patients, the students, the medical attendants and the community at large, one of the greatest needs of our time is for a better coordination of the hospitals and the medical schools.

This suggests many questions. Should this fifth year be primarily under the control of the licensing bodies—the boards of medical examiners—or of the men who are concerned with the education of the student—the faculties of the medical schools?

There seems little hope, all things considered, for universal reciprocity between the medical boards of our forty-eight states with their widely varying standards of examination. But some more sane and equitable method of insuring to every capable practitioner of medicine the right to practice anywhere in the Union, and to move without embarrassment at any time from one state to another, such as is furnished by the National Board of Medical Examiners, is an imperative need.

Recent Progress and Further Needs in Medical Education

Dr. N. P. Colwell, Chicago: There are now eighty-five medical colleges, of which eighty, or 94 per cent., require for admission two years of work in a college of arts and sciences, as compared with only 2.5 per cent. of all colleges holding to that requirement in 1904. And this requirement is not "on paper" only, since these colleges are voluntarily furnishing the Council with lists of the students admitted, together with statements regarding their preliminary qualifications, so that the Council can verify these qualifications, should question in regard to them arise.

Considering the character of the majority of medical schools prior to 1904, it is not so surprising that, according to reports, many of the physicians called into service may have been lacking in a knowledge of the specialties, and that some lacked a knowledge even of the fundamentals of medicine. Every one knows that there is still great room for improvements in teaching methods and in the thoroughness of instruction in our medical schools; but think how much greater would have been the deficiencies on the part of medical officers had it not been for the tremendous improvements in medical education and the many thousands of highly trained graduates who were turned into the medical profession during the last fifteen years.

Reports from seventy-three of the eighty-five colleges now holding sessions indicate that the total enrolment of medical students will be about 1,100 less than for the session of 1917-1918. The reduction is chiefly in the freshman classes. There were twenty-five medical schools which last fall for the first time exacted two years of collegiate work as the minimum requirement for admission, in which lower enrolments for the freshman classes would be expected. But the decrease was not due altogether to the higher entrance requirements, since, of the forty-eight colleges reporting which put into effect the higher requirements previous to 1918, thirty-nine report a decrease in the number of freshman students. The unusual decrease is largely due to the drafting or volunteering of premedical students during 1917-1918 for military service.

The total number of physicians in the United States, as shown by the sixth edition of the American Medical Directory, issued in 1918, is 147,812. The total population of the United States, according to the estimate of the Census Bureau for 1918, is 105,253,300. There is, therefore, one physician in the United States for every 712 people.

Two methods have thus far been devised for the continuous sessions in medical schools. One is the "quarter system," by which the year is divided into four terms of three months each, any three terms counting as a college year. The second plan is to divide the year into three terms of four months each, any two terms to count as a college year. The schools which have adopted the continuous session have so arranged their curriculums and provided the teachers that students who are physically able and who desire to do so may continue at their medical studies the year around. In their schools also, during any quarter, students may make up courses in which for any reason they have failed to complete without loss of an entire year. Delayed matriculation also will mean the loss of only one quarter instead of an entire year. The continuous plan also enables the institutions to care for a larger number of students, and it keeps an extensive teaching plant in continuous operation.

An improvement still greatly needed in medical schools is in the methods of clinical instruction of medical students. Students should be enabled to complete most of their didactic courses in the third year so that most, if not all, of the time in the fourth year may be devoted to clinical courses for groups of about six students each in the hospital wards. Each student should have a patient assigned to him, and under careful supervision should write the history, make the essential laboratory examinations, suggest the treatment and follow the progress of the case during the patient's stay in the hospital.

On the student's undergraduate clinical training depends the standard of clinical training which should be furnished in the intern year. The character of this training is best known to the medical college he attended and not to the state licensing boards. It is a desirable step for state licensing boards to require the completion of an internship in a hospital as an essential for the license; but the medical college is in the best position to select the hospitals in which its students should obtain their intern training and to supervise the work of the intern in such hospitals.

The Needs of Medical Education as Revealed by the War

Edward L. Munson, Brig.-Gen., M. C., U. S. Army: The nature of the conditions and ideas under which the old Medical Reserve Corps was organized had their influence on its medical standards and the medical examinations required for its enrolment. In general, it was composed of three classes: 1. The recognized leaders of the medical profession, who lent the weight of their well known names and great professional reputations to popularize the then new Reserve Corps; the abilities of these men were well known, and the examinations to which they were subjected were probably cursory. 2. A somewhat smaller class probably consisting of a personnel drawn from the average class of practitioner, such as constitutes the backbone of the medical profession of the country; here also the examinations required were none too rigid, but no professional difficulty later occurred as a result of any professional inefficiency on their part. 3. A not inconsiderable third class, composed of less well qualified men, some of whom enrolled for patriotic purposes and others perhaps by reason of the desire to possess a commission.

The medical officers who finally reached the medical training camps represented better than the average of the medical profession of the country, for these candidates had been subjected to several processes of elimination:

(*a*) They had to be invited to appear for examination by the Surgeon-General, and unless they appeared to be probably desirable, this invitation might not be forthcoming.

(*b*) They had to be graduates of reputable medical colleges, which ordinarily eliminated men coming from institutions of poor character.

(*c*) They had to be licensed to practice in the state in which they lived, which would exclude medical graduates who had been found later to be not thoroughly qualified.

(*d*) They had to be in the active practice of their profession, thereby excluding the failures in medical practice who were making their living by some other vocation.

(*e*) They had to pass an examination before a local board, which had to be satisfied with their professional, physical and moral qualifications. Here occurred the greater number of rejections, for the local board not only was in a position to test out qualifications by examination, but in many instances it knew the candidate personally or by reputation, and was well informed as to his antecedent activities and conduct.

(*f*) Before they were commissioned, the American Medical Association investigated and reported on their cases, to make sure that there was nothing in their career that should render undesirable their appointment as medical officers.

(*g*) Finally, the Surgeon-General had the right of rejection, which was exercised in the case of men who ultimately appeared from their papers to be not qualified for the service.

Thus a large proportion of the undesirables were excluded from service and never reached a medical training camp which dealt with an already selected class. That this selected class presented still further professional deficiencies invites reflection on the part of all those in charge of medical education.

The medical training camps acted as filters to determine and eliminate the unfit. Examining boards were appointed to examine all student officers, and to recommend for discharge all whom they found disqualified for service in any capacity.

For some time the recommendations of these boards were not fully accepted by the specialist divisions of the Surgeon-General's Office, which had card indexed the men whose reputations seemed to warrant their acceptance as specialists. So many were found to be overrated by their reputations that the specialist divisions finally agreed to make their appointments subject to the examination held by the examining boards at training camps. The number found not qualified was considerable. A few alleged specialists were even found unfit to practice any branch of medicine in the service. Others not qualifying were made available for general assignment. General reputation is not necessarily a criterion of qualification, and a large number of men, generally accepted as specialists, are not qualified as experts.

Another class was not qualified but was too good to be discarded summarily. Accordingly "salvage classes" were started, the members of which were systematically and intensely quizzed by expert quiz-masters. The men assigned to these salvage classes were bright and energetic enough, but for one reason or another had not kept up with medical progress. The subjects in which they were quizzed were only those in which they were found deficient. The reclamation course usually covered about three weeks, when the candidates were reexamined and nearly all qualified. The reclamation classes at Camp Greenleaf amounted to as much as 6 or 8 per cent. of the student officers' group.

The general professional qualifications of officers bore a close relation to the educational standards of the schools from which they graduated. But various instances were noted in which graduates of good schools made a poor professional showing. Medical schools should require a satisfactory psychologic rating for condidates for admission to a course leading to the degree of Doctor of Medicine, to make sure that they have the mental aptitude to qualify properly for it.

A very large proportion of alleged specialists were found to be only partly qualified. To render them properly qualified, special schools were organized which were staffed with the ablest professional specialists in the country. The courses were highly practical and intensive, and the student officers appreciated their great value.

I cannot forbear from expressing my admiration at the manner in which the profession in uniform adapted itself to conditions. Its members accepted cheerfully the results of the stock taking of their qualifications, even though the latter might not have been flattering, and cooperated in every way to remedy the defects thus made apparent. Their eyes were opened to any shortcomings of the profession as a whole, and it is safe to assume that their military experience has shaken them out of complacency, and given them new ideals and broader purposes. One of the results of the war will be a better and more competent medical profession, the members of which will look to the medical educators of the country to set high ideals and provide the facilities for their attainment.

The Medical Enlisted Reserve Corps and Its Relation to Medical Students

FREDERICK C. WAITE, Capt., Sanitary Corps, U. S. Army: With the declaration of war there was an immediate stimulus to enlistment in the Medical Reserve Corps. While these enlistments were as reservists, they were in the majority of cases made with the expectation of an early call to active duty. These enlistments were made in large part in connection with the formation of units in the Medical Department. Under this plan fifty Red Cross and base hospital units were formed. The enlisted personnel of each of these units approximated 200 men. Some of these units constituted the first military forces to be sent overseas following the declaration of war, arriving in Europe several weeks in advance of the earliest Regular Army organizations.

The purpose of permitting medical, dental and veterinary students to enlist in the Medical Enlisted Reserve Corps, to be left on inactive status, was to enable them to complete their professional training in order that they might be available material for officers in the Medical Department of the Army.

The justification for inactive status, and the consequent delay in entrance on active military duty, was the greater service that would be later rendered to the Army as medical officers. It was a legitimate war preparedness measure to train soldiers to render a more highly specialized service, if the war should go on, than they could render if immediately drafted as ordinary soldiers. Previous to the announcement, Sept. 4, 1917, of the regulations permitting medical students to enlist in the Medical Enlisted Reserve Corps, however, a considerable number of medical students volunteered or were inducted into active service.

The plan of allowing graduates of well recognized medical schools to serve as interns in hospitals for one year had a double object. It aimed to develop better medical officers for Army service by this practical experience and to preserve the efficiency of the hospitals of the country for protection of the civilian community.

Such an intern after graduation either obtained a commission in the Medical Reserve Corps or enlisted as a private in the Medical Enlisted Reserve Corps. In either case he was placed by his local board in Class V, and exempted from the draft on the ground that he was already in the military service of the country.

The continuance of inactive status for the intern was conditioned on the performance of his duties in the hospital in a manner satisfactory both to the Surgeon-General and to the authorities of the hospital, which was established by reports from the hospital authorities.

This regulation necessitated a classification of the hospitals of the country. A questionnaire was sent out from the Surgeon-General's Office to those hospitals which, on information available from these sources, appeared to be eligible for approval as places in which to train interns for Army purposes.

The Desirability of Units of the Reserve Officers' Training Corps in Medical Schools

HORACE D. ARNOLD, Lieut.-Col., M. C., U. S. Army: The object of the Student Army Training Corps was to educate and train a body of intelligent men in preparation for positions as commissioned officers in the Army. The Committee on Education and Special Training feels that the S. A. T. C. did not have a fair chance in collegiate institutions, owing to a number of conditions beyond control. The success of its vocational sections, when time enough had elapsed for the proper development of methods, was unquestioned. Yet it is true that if this work had been stopped at the end of a month or six weeks, the story would have been one of confusion and lack of adjustment, almost equal to that of the S. A. T. C. in medical schools. The Army is convinced that the introduction of the regular military life into a professional school, with a curriculum as crowded and complicated as that in medicine, is not practicable. Should the occasion ever arise again which would require medical students to be soldiers in service, while still continuing the study of medicine, I think you may count on the least practicable interference with the medical course.

In order to make this plan effective, physicians should have, in addition to the qualifications for civilian practice, at least the following qualifications: (1) a knowledge of military hygiene and sanitation; (2) a sufficient knowledge of Army organization and methods to enable them to procure supplies and to carry on the administrative functions of their positions; (3) a sufficient military training to enable them to command the soldiers of the Medical Department under their charge.

These requirements can best be met through training in units of the Reserve Officers' Training Corps established in medical schools, and in summer training camps. Owing to the crowded curriculum of the medical schools, such a plan of military training must be so arranged as not to interfere seriously with the regular course of study in medicine. In the contemplated plan, military drill will be given at the summer camps; the number of strictly military courses will be reduced to a minimum; and the necessary theoretical training for medical officers will be sought, as far as practicable, in the adaptation of the existing courses of the medical school to military needs. Physical training to the extent of two hours a week for the freshman and sophomore years of the medical course will be required of members of the R. O. T. C., but it is felt that this will be of such definite personal advantage to medical students that it might well be adopted by the school as a requirement for all students. In no way does the medical school ignore its own teaching more than in its usually complete neglect of provisions for the physical health of its students. The normal R. O. T. C. course is divided into a basic course, covering two collegiate years and one summer camp, and an advanced course, covering two collegiate years and two summer camps. The basic course should be taken, if possible, before the student enters the medical school; and an opportunity to do this is offered while he is taking the two years of the required premedical course, provided the college maintains an R. O. T. C. unit. The basic training in infantry or in any other arm of the service will be acceptable. Military drill during the academic year is not essential, as a sufficient amount of this may be obtained in the summer camp, which the student should attend during the vacation following his freshman or sophomore year.

The advanced course will be offered at the medical school. The physical training and the required courses in strictly military subjects will be given during the first two years of the medical course, and the two summer camps devoted to the military training of the Medical Department will come during the vacations following the freshmen and sophomore years. In this way the last two clinical years of the medical course will be left essentially free from interference from the military training, the only courses necessarily given during these years being the relatively short theoretical courses in military surgery and military medicine.

It is the intention of the committee to have the members of the R. O. T. C. unit, during the period of the summer camp following the sophomore year of the medical course, assigned to duty in Army hospitals. They will thus learn not only the military duties of officers and enlisted men in these organizations, but will get practical experience in nursing and the care of the sick that will be equally valuable for civilian practice.

The requirements for graduation from the R. O. T. C. are: (1) the completion of the basic course of the senior division, R. O. T. C., or its equivalent; (2) the completion of the advanced course, R. O. T. C., and (3) attendance at three summer camps. On graduation from the medical school and from the R. O. T. C., and on recommendation of the professor of military medicine, and provided he is at least 21 years of age and he agrees under oath and in writing to serve the United States as reserve officer for at least ten years from date of appointment, unless sooner discharged by proper authority, the student may receive a commission in the Medical Reserve Corps.

(To be continued)

Japanese Red Cross.—The Red Cross organization in Japan had its beginning about 1889. Five years later there was a membership of 160,000 and a fund of about $2,000,000. As a result of the war with China the membership in 1898 had increased to 570,000 and the annual income was approximately $800,000. At present, according to the Red Cross Bulletin, the Japanese organization has more than a million and a half of members, each of whom has enrolled for ten years, and pays into the organization at least $1.50. The headquarters of the organization in Tokyo is housed in a splendid modern building.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

February, 1919, **157**, No. 2

*Cutaneous Aspects of Tuberculosis. "Tuberculous" Purpura, Erythema Multiforme and Erythema Nodosum. J. H. Stokes, Rochester, Minn. —p. 157.

*Acute Pulmonary Emphysema During Epidemic of Influenzal Pneumonia at Camp Hancock, Ga. R. G. Torrey, Philadelphia, and L. C. Grosh, Toledo.—p. 170.

*Case of Primary Carcinoma of Third Portion of Duodenum. G. D. Head, Minneapolis.—p. 182.

*Examination and Treatment of Soldiers Infected with Hookworm at Camp Beauregard, La. D. J. Frick, M. C., U. S. A.—p. 189.

*Granular Tuberculous Conjunctivitis Treated By Instillations of Tuberculin. R. C. Paterson, Saranac Lake, N. Y.—p. 198.

*Study of an Unusual Glycosuria. L. Langstroth, San Francisco. —p. 201.

*Graham-Steel Murmur in Mitral Stenosis. E. H. Goodman, Camp Jackson, S. C.—p. 206.

Use of Binocular Loupe for Examination of Functional Troubles of Pupil. E. Berger, Belgium.—p. 208.

Epidemic Cerebrospinal Meningitis at Camp Beauregard, La. A. A. Landry, Plaquemine, La., and W. H. Hamley, Lake Providence, La. —p. 210.

*Influenza Pneumonia Cases Showing Gas in Fascial Tissues. E. Clark, Chicago, and M. J. Synnott, Montclair, N. J.—p. 219.

*Renal Diabetes. C. V. Bailey, New York City.—p. 221.

*Multiple Endothelioma of Skin. F. Wise, New York City.—p. 237.

*Clinical Results in Two Hundred Transfusions of Citrated Blood. R. Lewisohn, New York.—p. 253.

Pathologic Changes of Brain in 162 Cases of Paresis. T. B. Christian, Norristown, Pa.—p. 271.

Cutaneous Aspects of Tuberculosis.—A careful study of ten cases made by Stokes leads to the conclusion that while it is impossible at the present time to dogmatize on the existence of a tuberculous type of purpura, erythema multiforme or erythema nodosum, clinical and experimental evidence is collecting to show a close association between a tuberculous infection and cutaneous syndromes of the type mentioned. Whether the lesions themselves are due to the tubercle bacillus, whether or not their appearance signalizes a flare-up in the tuberculous focus, cannot as yet be definitely stated. It is possible that a nontuberculous infection which produces erythema complex may uncover the tuberculous focus, much as measles is known to do, and permit a lighting up of a lesion otherwise quiescent. Stokes believes that the purpuric erythematous and nodose lesions are cutaneous reactions to hematogenously distributed bacilli, deposited in a hypersensitive skin and originating in a tuberculous focus sometimes unrecognized perhaps for many years. Whether the tuberculous phase is the cause or the consequence, the frequent clinical association of the cutaneous symptoms with this disease loses none of its importance from the standpoint of diagnosis and therapy. Stokes urges that every case of purpura, and many cases of erythema multiforme, should be subjected to a preliminary survey for the possibility of tuberculous infection. Cases of erythema nodosum, whatever their type, should be subjected to periodic reexamination and observation. In the absence of a demonstrable source of pyogenic infection, and even in its presence, the possibility of tuberculous etiology should be entertained seriously and an antituberculosis hygiene considered.

Acute Bronchitic Emphysema in Influenzal Pneumonia.—Observation of 1,150 soldiers with epidemic influenza pneumonia at Camp Hancock has indicated that the disease as it occurred there differed so essentially in its pathology and course from lobar, bronchopneumonia or lobular pneumonia, according to the usual conception of these diseases, that Torrey and Grosh designated the condition as acute bronchitic emphysema. Certain conditions were invariably present, including an intense bronchitis and peribronchitis similar to that found in a previous epidemic of pure hemolytic streptococcus infection. There was also present from the first a destructive softening of the lung parenchyma. In addition to this there was always an early and persisting

generalized pulmonary emphysema which frequently was the main factor in causing death by interference with the mass movement of the venous blood. These conditions were found in every case examined at necropsy. Except for frequent acute otitis media there were almost no complications or sequelae outside of the chest. The pulmonary emphysema, with consequent venous stasis, accounted for the cyanosis, epistaxis and fixation of the chest in the phase of extreme inspiration, with low stand of the diaphragm, which characterized these cases, and also accounted for the paradoxical physical signs in cases in which fluid developed in the chest.

Primary Carcinoma of Duodenum.—Head reports the case of a man, 74 years of age, well nourished, looking very anemic, who for seven or eight years had complained of ill-defined gastric symptoms, exhibiting at times periodic attacks of vomiting of large quantities of greenish material, with partially digested blood, whose physical examination revealed a high grade secondary anemia, without assignable cause, except the presence of blood in the vomit and in the stools. He also presented a hyperacid gastric content. No palpable mass was in evidence. He died with the symptoms of obstructive vomiting—namely, either a carcinoma high in the intestinal tract, below the stomach, or a duodenal ulcer with a carcinoma superimposed, causing obstruction by occlusion of the bowel.

The diagnosis of the case prior to necropsy was a duodenal ulcer, with carcinoma superimposed, producing a slow developing occlusion of the intestine not far from the pyloric opening. Necropsy disclosed a resistant mass at the lower curve of the duodenum and extending over into the third portion. The lumen was almost completely occluded by a cauliflower-like mass growing from the median and posterior wall. Microscopic examination of the tumor showed a typical adenocarcinoma of the papillary type. Infiltration extended deep into the muscular layer of the duodenum on its inner aspect. No gross or microscopic lesions in the suprarenals, liver, pancreas or lymph nodes around the celiac axis were in evidence.

Soldiers Infected with Hookworm.—The percentage of positive cases for all white troops examined by Frick was 11.5 per cent.; the percentage of positive cases in the colored troops was 1.1 per cent. The three principal states gave the following figures: Louisiana, 898 cases; Mississippi, 454 cases; Arkansas, 243 cases; from all other states. 126 cases. Hookworm apparently has no marked effect on the health of the great majority of these men. This may be due to the mildness of the infection or the fit condition of the men through training. A routine was followed from the beginning and carried through without variation.

The soldiers were sent to the base hospital in groups of twenty to 135, usually after the noon meal. Early in the afternoon they were given a dose of salts; at 5 p. m. a thin broth; at 6:30 p. m. more salts. The next morning at 6 a. m. a third dose of salts. At 8 a. m. and 10 a. m., 1 c.c. of oil of chenopodium. This was followed an hour later by an ounce of castor oil in orange juice. In the middle of the afternoon they were given some liquid nourishment and at 5 p. m. a full meal. The next morning, after breakfast, they were returned to their companies. The oil of chenopodium was poured into capsules or given on sugar.

Granular Tuberculous Conjunctivitis.—In the case cited by Paterson 2 drops of 1 per cent. solution of O. T. was instilled into the conjunctival sac and almost immediately a dilation of the conjunctival vessels could be seen and a sharp reaction followed. This treatment was continued for six doses, at about ten-day intervals, making in all eight treatments, with reactions, after which the conjunctiva showed little evidence of the disease. All symptoms had entirely disappeared, the only evidence of previous disease being a few fine granulations and slight reddening of the bulbar conjunctiva at the extreme inner canthus. The palpebral conjunctiva was clear, but there seemed to be some thickening, as the palpebral slit was slightly narrower than that of the opposite eye and the patient was not able to open the affected eye quite as widely as the right. The lung condition and throat disease were quiescent during the treatment and have not since been affected by the reactions. The patient is now doing light office work for the first time in two years.

Study of an Unusual Glycosuria.—A case of glycosuria with apparently lowered renal threshold for glucose is reported by Langstroth. There were no other symptoms of diabetes. There was evidence of abnormal carbohydrate metabolism.

Graham-Steel Murmur in Mitral Stenosis.—Thirty-six cases of mitral stenosis were studied by Goodman. These cases were definitely mitral stenosis and not aortic insufficiency, with a Flint murmur. Of the thirty-six cases, twenty-four were pure mitral stenosis, i. e., with no insufficiency, and twelve were associated with a definite systolic murmur of an insufficiency. In the thirty-six cases a diastolic murmur along the left border of the sternum was heard twelve times, or in 33.3 per cent. of the cases. In the twenty-four cases of pure stenosis it was heard nine times, or 37.5 per cent., and in the twelve cases of stenosis with insufficiency it was heard three times, or 25 per cent. It would seem, therefore, that the Graham-Steel murmur is heard rather more frequently in the pure cases than in those associated with insufficiency.

Influenza-Pneumonia Showing Gas in Fascial Tissues.—Twelve cases of this kind are reported by Clark and Synnott. Three cases ran an uneventful course and recovered without surgical procedure. At necropsy the gas-containing tissue showed little blood in the vessels. It presented no discoloration, no congestion, no induration or other signs of inflammation. Bacteria were not recovered. Gas was not found within the muscle sheaths. The distribution of the gas corresponds with what we would expect to be the dissemination of gas escaping from the weakened alveoli of the lung under pressure. The authors are of the opinion that the "gas" in the above cases of pneumonia is air from the lung which reaches its distribution as a result of purely mechanical factors. They do not believe the gas is of bacterial origin.

Renal Diabetes.—Bailey reports two cases. He believes that renal diabetes, or better, "renal glycuresis," should be considered broadly as a condition of glycuresis not dependent on a temporary increase of blood sugar in an individual free from symptoms of diabetes mellitus. The condition can be recognized by morning synchronous blood and urine sugar tests, the specimens being collected before the patient has had anything to eat or drink. At least two types can be recognized: (1) cases with normal or subnormal blood sugar and glycuresis, which is greatly influenced by blood sugar changes; (2) cases with a constant glycuresis which varies with the rate of urinary excretion and is little influenced by blood sugar changes.

Multiple Endothelioma of Skin.—The type of endothelial new growth seen by Wise in two cases is very rare. Clinically, tumors of endothelial origin may be indistinguishable from the efflorescences of urticaria pigmentosa, xanthoma, soft moles, syringocystadenoma, multiple benign cystic epithelioma and perhaps other dermatoses. The study of sections occasionally reveals new growths of endothelial origin.

Transfusions of Citrated Blood.—The 200 transfusions of citrated blood made by Lewisohn were done for the following reasons: (*a*) hemophilia and allied conditions, 14 cases, 15 transfusions; 11 cures, 3 deaths; (*b*) purpura hemorrhagica, 16 cases, 20 transfusions; 4 cures, 5 improved, 2 results unknown, 5 deaths; (*c*) gastro-intestinal hemorrhage, 11 cases, 20 transfusions; 2 cures, 1 improved, 8 deaths; (*d*) cholemia, 5 cases, 11 transfusions; 5 deaths; (*e*) postoperative hemorrhages, 13 cases, 16 transfusions; 6 cures, 7 deaths; (*f*) hemorrhages from the female genital organs, 2 cases, 2 transfusion; 2 deaths; (*g*) traumatic hemorrhages, 2 cases, 3 transfusion; 1 cure, 1 death; (*h*) pernicious anemia and leukemia, 24 cases, 39 transfusions; 7 improved, 4 not improved, 13 deaths; (*i*) primary and secondary anemia, 4 cases, 7 transfusions; 3 cures, 1 improved; (*j*) preoperative and postoperative transfusions, 35 cases, 39 transfusions; 12 cures, 23 deaths; (*k*) sepsis, 5 cases, 7 transfusions, 5 deaths; (*l*) incurable conditions (transfusions performed at request of family) 12 cases, 12 transfusions; 12 deaths; (*m*) general debility, 6 cases, 8 transfusions; 1 improved, 1 result unknown, 4 deaths; (*n*) acute poisoning, 1 case, 1 transfusion, 1 cure.

American Journal of Ophthalmology, Chicago

February, 1919, **2**, No. 2

Scar Tissue Conjunctivitis in Animals—Relation to Insects and Trachoma. F. B. Eaton, San Francisco.—p. 81.
Thermotherapy of Corneal Ulcers. L. Weckers, Liége, Belgium. —p. 87.
Bitemporal Hemianopsia Due to Acute Suppuration of Posterior Nasal Sinuses. F. A. Conlon, Lawrence, Mass.—p. 92.
Monocular Retrobulbar Optic Neuritis from Hyperplasia of Ethmoid Bone: Report of Cases. D. T. Vail, Cincinnati.—p. 96.
Diseases of Uveal Tract. S. D. Risley, Philadelphia.—p. 104.
New "Malingeroscope." E. M. Alger, New York City.—p. 112.
Etiology of Phlyctenular Ophthalmia. H. H. Turner, Pittsburgh. —p. 115.
Perspective for Aviators. W. H. Dudley, Los Angeles.—p. 119.
Ophthalmoscopy with Red-Free Light of Vogt. R. Von Der Heydt, Chicago.—p. 122.
Correction of Cross-Eye. J. A. Kearney, New York.—p. 124.
Hyperplastic Exudative Retinitis (Nonhemorrhage.) J. W. Jervey, Greenville, S. C.—p. 127.

American Journal of Physiology, Baltimore

Feb. 1, 1919, **128**, No. 1

Effect of Narcosis on Electrotonus. T. P. Frizzell, Houston, Texas. —p. 1.
*Effect of Fatigue on Heart and Cardioskeletal Quotient. W. L. Mendenhall, Dartmouth.—p. 13.
*Output of Epinephrin in Shock. G. N. Stewart and J. M. Rogoff, Western Reserve University.—p. 22.
Electrical Responses of Eye to Stimulation by Light of Various Wave-Lengths. C. Sheard and C. McPeek, Columbus, Ohio.—p. 45.
Changes in Weights of Various Parts, Systems and Organs in Albino Rats Kept at Birth Weight by Underfeeding for Various Periods. C. A. Stewart, Minneapolis.—p. 67.
*Stimulation and Inhibition of Gastric Secretion which Follows Subcutaneous Administration of Certain Organ Extracts. J. Rogers, J. M. Rahe and E. Ablahadian, Cornell.—p. 79.
Rate of Respiratory Metabolism in Planaria. I. Effect of Potassium Cyanid on Rate of Oxygen Consumption. G. D. Allen, Minneapolis. —p. 93.
*Treatment of Severe and Progressive Hemorrhage by Intravenous Injections. W. G. Penfield, Baltimore.—p. 121.

Effect of Fatigue on Cardiac Irritability.—The evidence obtained by Mendenhall from his experimental work leads him to believe that the heart, like other tissues of the body, is affected by the products of fatigue. Extreme fatigue, i. e., carried to a point impossible of attainment by voluntary efforts, causes a depression of the electrical irritability of the heart, followed by a rise in irritability which may continue for some time. Moderate fatigue, i. e., carried to a point possible of attainment by voluntary efforts, causes a marked rise in the irritability of the heart muscle.

Output of Epinephrin in Shock.—The rate of output of epinephrin in dogs and cats, after the blood pressure had been permanently lowered by exposure and manipulation of the intestines, by partial occlusion of the inferior vena cava, by hemorrhage and by "peptone" injection, Stewart and Rogoff found to be the same as before the lowering of the blood pressure, within the limits of error of the methods used for assaying the epinephrin. A marked increase in the rate of output of epinephrin was produced by strychnin.

Influence of Organ Extracts on Gastric Secretion.—Rogers and his associates found that a slightly alkaline saline solution, or alcohol, extracts from the thyroid some noncoagulable material which is a vigorous stimulant for the gastric secretion. This material produces its effects at least in part by intensification of the functions performed by the terminal filaments of the (gastric) vagus. Extracts similarly made from the pathologic tissue of the adenomatous or hyperthyroid human glands are inert. Extracts of the suprarenal gland vigorously inhibit gastric secretion. These extracts all contain more or less epinephrin and, therefore, it is presumable that their effect is produced by intensification of the inhibitory function which is ascribed to the (gastric) sympathetic. Epinephrin is not as active a gastric inhibitor as suprarenal proteins obtained from extracts of the whole gland. These suprarenal nucleoproteins contain only traces of epinephrin. Extracts of the pituitary gland also inhibit gastric secretion, but only about one half as vigorously as do extracts of the suprarenal.

Treatment of Hemorrhage by Gum Solutions.—In the experimental work done by Penfield, the blood pressure of experimental animals was kept at a shock level for various lengths of time by progressive bleeding so that their condition resembled that which must frequently exist in wounded men at the front who have sustained severe and continued loss of blood. After analyzing the condition of these experimental animals according to the duration of low blood pressure, the amount of blood lost and the degree of acidosis resulting, Penfield was not able to show that gum-sodium bicarbonate solution or gum-glucose solution is more efficacious in saving life than is an isotonic solution of sodium chlorid. By perfusing an isolated vascular bed it was shown that following a large hemorrhage there is a primary constriction of the peripheral vessels. With continued low blood pressure this constriction passes off and dilatation supervenes. Associated with this dilatation the venous pressure rises while the arterial pressure is falling. All dogs in which the venous pressure rose while the arterial pressure was falling for a period of twenty minutes or more, died regardless of treatment. The effects of stimulation of the saphenous nerve while these animals were in a condition of profound shock indicated that the reflexes affecting respiration and blood pressure were not paralyzed.

American Journal of Obstetrics and Diseases of Women and Children, New York

February, 1919, **79**, No. 2

*Springs of a Nation's Life. E. P. Davis, Philadelphia.—p. 178.
*Influenza in Relation to Pregnancy and Labor. P. B. Bland, Philadelphia.—p. 184.
*Cesarean Sections Done at Long Island College Hospital During Past Six Years. A. C. Beck, Brooklyn.—p. 197.
*Cure of Prolapse of Uterus. A. M. Judd, Brooklyn.—p. 217.
An Epidemic of Vesicular Dermatitis of Newborn. J. O. Arnold, Philadelphia.—p. 225.
*Influenza: Its Influence on Gynecologic and Obstetric Conditions. L. K. P. Farrar, New York City.—p. 229.
*Influenza in Pregnancy. G. W. Kosmak, New York City.—p. 238.
*Influenza Complicating Late Pregnancy and Labor. W. E. Welz, Detroit.—p. 247.
Defiance of Surgical Principles Cannot Prevail. J. W. Kennedy, Philadelphia.—p. 252.
*Treatment of Sepsis. R. J. Behan, Pittsburgh.—p. 262.

Springs of a Nation's Life.—Abstracted in THE JOURNAL, Dec. 28, 1918, p. 2172.

Influenza in Relation to Pregnancy and Labor.—According to Bland's observations, epidemic influenza, of a mild and moderate character, occurring in pregnant women, is not associated with grave danger to the mother or her gestation. Influenza, when severe and associated with pulmonary complications, is an extremely serious affection and is associated with abortion or premature labor in a large percentage of cases, frequently followed by death of both mother and child. The disease in the mother is distinctly a contact infection.

Cesarean Sections.—In Beck's series of thirty-seven cases only one mother died; death was due to eclampsia.

Cure of Prolapse of Uterus.—The Sims-Emmett-Baldwin combined procedure has been used by Judd for five years with uniformly good results.

Influence of Influenza on Gynecologic and Obstetric Conditions.—A review of the literature by Farrar disclosed that mild attacks of influenza have no influence on gynecologic or obstetric conditions. Severe attacks produce menorrhagia and exacerbation of chronic gynecologic conditions, and often abortion, premature delivery, or stillbirth. Labor is prolonged and tedious. Pregnancy has an unfavorable influence on the course of a bronchitis or pneumonia influenza. Induction of labor has no beneficial effect on the course of influenza. The chances of general infection are greater if influenza occurs during the puerperium.

Influenzal Pneumonia in Pregnancy.—Kosmak does not agree with others in the belief that pregnant women are more liable to contract influenzal pneumonia than the nonpregnant.

Influenza Complicating Late Pregnancy.—According to Welz, the prognosis for women suffering from influenza in late pregnancy or labor is good, providing there is no pulmonary complication. A small percentage have premature labor with a considerable number of stillbirths. Those suffering the complications of lobar pneumonia or broncho-

pneumonia are desperately ill. If the case be mild with slight symptoms of toxemia the result may be favorable. The severe type is almost invariably fatal. Cyanosis, air hunger, leukopenia and low blood pressure are unfavorable signs. A change from leukopenia to leukocytosis signifies a favorable reaction. An increase of systolic and especially diastolic pressure is a hopeful sign. Increasing cyanosis and air hunger indicate a rapidly fatal termination.

The severe cases of pneumonia in late pregnancy suffer from a severe toxemia. The fate of the fetus is linked with that of the mother. An effort to save one, disregarding that of the other is apt to be disastrous to both. Hope for both lies in overcoming the toxemia and not in induced labor or forced delivery. It is the toxic state which is fatal, not the delivery, though this is an added strain on the mother. So efforts to hurry delivery are more harmful than noninterference. Just as in eclampsia, the best results will come from efforts to control the toxemia. The chances for the fetus are bad. The toxic state either causes antenatal death or premature labor which is apt to be fatal to the fetus. The fetal mortality is lessened where the mother recovers. There it is inadvisable to make efforts to save a morbid child by means which are detrimental to maternal life. All efforts should be made to control the toxic state early in the disease. The best hopes for both mother and child lie not in meddlesome obstetrics but in overcoming the toxemia.

Treatment of Sepsis.—Behan's article may be summarized as follows: Sodium carbonate or bicarbonate has a definite place in the treatment of infections. It seems in early stages of sepsis, including pneumonia, to be almost specific. In the later stages of pneumonia and of sepsis, injection is apparently contraindicated. In the early stages of infection the intravenous method of injection is the best. Glucose solution, if used in the later stages of pneumonia, should be used alone because the exhibition of the alkali reduces the coagulability of the blood to such a degree that it causes a tendency to pulmonary edema. If the glucose solution is to be used in the early stages of pneumonia it may, because of the increased viscidity of the blood, hinder the exudation. Salvarsan is also of value, especially in septicemia. Vaccines are of value in certain cases and in all obstinate infections should be exhibited. Vaccines in overdose seem to have a deleterious influence. Antistreptococcic serum is of great value in streptococcic infection. It, however, should not be given on a falling temperature and if the temperature remains stationary it should be given only in greatly reduced doses. A chill following its administration is not a bad omen. It should never be mixed with any foreign material. Large initial doses should be given, however, in all cases; small preliminary injections should be given as a test for serum sickness. Transfusions of blood are of distinct value in sepsis, especially in those cases of falling blood pressure.

Archives of Internal Medicine, Chicago

Feb. 15, 1919, **23,** No. 2

*Cause of Reactions Following Transfusion of Citrated Blood. C. K. Drinker and H. H. Brittingham, Boston.—p. 133.
Chronic Form of Meningococcus Meningitis: Report of Cases. A. Gordon, Philadelphia.—p. 150.
*Cardiac Arrhythmias of Atrial Origin Occurring in Patient with Focal Infections and Thyroid Adenomata. L. F. Barker, and H. B. Richardson, Baltimore.—p. 158.
*Pituitary Headaches and their Cure. I. H. Pardee, New York.—p. 174.
*Etiology of Cholecystitis and its Production by Injection of Streptococci. R. O. Brown, Rochester, Minn.—p. 185.
*Physiologic Action of Cantharis. S. Morgulis and A. L. Muirhead, Omaha.—p. 190.
*Hydrocephalus and Choked Disk in Dogs. L. H. Kornder, Davenport, Iowa.—p. 197.
*Treatment of Bronchial Asthma with Vaccines. I. C. Walker, Boston.—p. 220.
Differentiation of Nephropathies, Cardiopathies and Allied Conditions by Determination of Physical Constants. A. O. Gettler and R. Oppenheim, New York.—p. 235.
Pathology of Pancreatic Ferments. H. Wago, Chicago.—p. 251.

Transfusion Reactions.—No method of transfusion is reaction-free, and the reactions have been ascribed to a variety of causes, but without effort at experimental analysis. Drinker's and Brittingham's experience with transfusion by the citrate method gives a larger number of reactions than are reported elsewhere. Out of eighty-three transfusions they have had a rise in temperature of 2.5 degrees fifty times, or 60 per cent., and of this number thirty-nine, or 47 per cent., have had chills. These figures include all the transfusions of whole citrated blood which have been done by different individuals at the Brigham Hospital. In order to test the matter further they have done seventeen such transfusions, using the most extreme care in the effort to reduce the reaction percentage. In these transfusions there were nine rises in temperatures above 2.5 degrees, or 53.3 per cent., and seven chills, or 40 per cent. Removal of the plates and a comparable number of white cells by defibrination, with thorough washing and suspension of the red cells in similar saline solution has resulted in 20 per cent. of reactions in fifteen transfusions. Addition of citrate from one to two hours before injection to transfusing blood so prepared has resulted in 44 per cent. of reactions in nine transfusions.

While the totals of the different types of transfusions which have been employed are not large, it appears that three elements make up the final total of reactions in citrate transfusion: (*a*) very rare gross incompatibilities, which escape in vitro detection (*b*) changes in the plates, part of the process of coagulation; (*c*) direct action of the sodium citrate on red cells promoting hemolysis.

Cardiac Arrhythmias.—Barker and Richardson record a case in which remarkable disturbances of cardiac rhythm were encountered in association with (1) peridental, maxillary and tonsillar infection, and (2) minute adenomata of the thyroid gland; and in which marked improvement followed treatment of the infected foci and partial thyroidectomy. There were observed in this patient at one time or another the following: (1) physiologic rhythm; (2) dislocation of the pacemaker from the sino-atrial node to points elsewhere in the atrium; (3) alternate atrial extrasystoles; none of which provokes a ventricular response; (4) alternate atrial extrasystoles, many of which provoke a ventricular response; (5) paroxysmal tachycardia and atrial flutter.

Pituitary Headaches.—A disproportion between the pituitary body and the sella produces pressure on the sensory nerves to the dura; and by its encroachment on the cavernous sinuses it may cause interference with the cerebral circulation, the whole setting up the train of pituitary symptoms, including headache. Pardee describes pituitary headache as having three characteristics: its location; its duration and persistence, and its relief under specific medication. The headache is situated "deep in the forehead behind the eyes." Deep pressure on the temples may elicit some tenderness. This headache is very persistent, usually lasting from one-half hour to forty-eight hours, and it may be continuous, frequently coming on in the female at the time of the menses. It often leaves very suddenly, returning again with exacerbations; it is accentuated by excitement, stooping over, and by the ingestion of sugar. At the climax of the headache there may be nausea and vomiting, with which there will come relief. Marked fatigue accompanies the headache, the patient hardly being able to drag himself about, and there is present to stroking a broad white skin line as evidence of suprarenal deficiency caused by the drain on the suprarenal function by the exhausted pituitary. The patients feel slowed down in their activity, yawn excessively, are sluggish and willing at any moment to seek an opportunity for sleep. These patients are particularly prone to attacks of depression, which come on without any cause, and have as their basis some very insignificant fact.

Knowing that the pituitary, together with the suprarenals, controls the mobilization of sugar in the body, it is not strange that these patients should have anomaly of sugar metabolism, as is seen in the periodic development of an intense craving for sweets, a sort of dipsomania, as it were, for sugar. The satisfaction of this desire being completed by eating candy, it is almost invariably followed by a typical pituitary headache. Owing to the increased demand on it, there is an enlargement of the pituitary gland, and following on this the suprarenals are called on to assist in mobilizing the sugar, the excessive drain on them causing great fatigue

and the formation of a vicious circle. The administration of whole pituitary is a specific, ¼ to 2 grains three times a day; an average for an adult is 1 grain, preferably given one hour after meals. Continuous medication with pituitary will result within a few days in a decrease in the intensity of the headaches; there will be a longer period between their occurrence, the head will feel less "tight," and fatigue, nausea, and vomiting will also disappear.

Etiology of Cholecystitis.—By making cultures of the emulsified tissues of gallbladders or adjacent lymph glands, streptococci were found by Brown to be the chief micro-organisms associated with cholecystitis. The direct etiologic relationship of the streptococcus is established by their presence, often in numbers proportionate to the degree of gross and microscopic changes, by their having elective affinity for the gallbladder of animals and by the specific agglutinating power of the serum of the patient from whom isolated. The elective affinity for the gallbladder of animals of the strains from the tonsils indicates strongly that cholecystitis is commonly a blood borne infection from a focal source.

Physiologic Action of Cantharis.—From their investigation Morgulis and Muirhead conclude that cantharis is not a drug which may be used experimentally to induce polycythemia, inasmuch as it does not cause a production of new red cells, but merely occasions a condensation of the blood through the loss of water in the process of elimination of cantharis by the kidneys.

Hydrocephalus and Choked Disk in Dogs.—Kornder summarizes the results of his experiments as follows: The production of hydrocephalus in dogs is accompanied by a distended optic sheath, hemorrhages and engorgement of the retinal veins and an edematous swelling of the nerve head, thus presenting features which characterize choked disk in man. This introduction of fluid under tension into the subdural space will also produce a like picture. The introduction of fluid under tension into the subdural spaces in a dog that is thoroughly atropinized will lead to nothing further than just the congestive features of choked disk, and this only after a long period of sustained high intracranial pressure. A venous stasis produced by ligation of the external jugular is insufficient to cause any optic disk changes. The production of choked disk in cases of hydrocephalus is not dependent on the presence of inflammatory factors but arises mechanically as a result of high venous pressure and an obstructed lymph drainage, both caused by the primary factor, the increased intracranial pressure.

Vaccine Treatment of Bronchial Asthma.—Twenty-eight patients with bronchial asthma were treated by Walker with vaccines of the bacteria to which they were sensitive; 75 per cent. were relieved of asthma, and 21 per cent. were improved. Seventy-five nonsensitive patients were treated with vaccines made from culturing their sputum on plain agar; the predominating organism was usually the one selected for treatment; 46.6 per cent. were relieved of asthma and 16 per cent. were improved. Twenty-four nonsensitive patients were treated with vaccines made from culturing their sputum in dextrose bouillon and using only the streptococci; 37.5 per cent. were relieved of asthma and 25 per cent. were improved. Thirty-five nonsensitive patients were treated with vaccines made from culturing the sputum both ways; in other words, many types of vaccines were used; 31.4 per cent. were relieved and 23 per cent. were improved. Sixteen nonsensitive summer asthmatics were treated with vaccines, 31.2 per cent. were relieved and 25 per cent. were improved. Therefore, of 150 nonsensitive asthmatics who were treated with vaccines, 40 per cent. were relieved and 20 per cent. were improved. With the sensitive cases, the age of onset of asthma, the duration of asthma and the age of the patient when treated had little to do with the prognosis; however, with the nonsensitive cases these facts had much bearing on the prognosis; the older the patient is when asthma begins and the older he is when treatment is begun, the more unfavorable the prognosis from vaccines in nonsensitive cases. The permanency of relief from vaccines in the nonsensitive cases depends on the individual's resistance to the bacteria in question; therefore, the duration of relief from asthma varies.

Arkansas Medical Society Journal, Little Rock

February, 1919, **13**, No. 9

Role of Appendix in Acute Abdomen. J. T. Palmer, Pine Bluff. —p. 163.
Preventable Blindness. W. T. McCurry, Little Rock.—p. 166.

Boston Medical and Surgical Journal

Feb. 20, 1919, **180**, No. 8

*Acute Changes Occurring in Cells of Solar Plexus in Intestinal Conditions. A. Myerson, Boston.—p. 208.
Cases of Pregnancy Associated with Tumor. F. W. Johnson, Boston. —p. 209.
*Subcutaneous Rupture of Spleen. I. J. Walker, Boston.—p. 211.
Influenza. J. Speares, Dublin, Ireland.—p. 212.

Acute Changes in Cells of Solar Plexus in Intestinal Conditions.—Two cases of insane patients are cited by Myerson in which acute intestinal conditions were associated with acute changes of the nerve cells of the type described as acute Nissl degeneration. A dementia praecox patient, woman of middle age, dying of volvulus, showed acute axonal reaction in the sympathetic cells of the solar plexus, without corresponding changes elsewhere. A juvenile paretic, dying of pleurisy with effusion of tubercular origin, fecal impaction and congestion of peritoneal blood vessels, showed acute axonal reaction in the sympathetic cells of the solar plexus.

Subcutaneous Rupture of Spleen.—Walker's patient was kicked by a horse in the upper abdomen, but continued to work, loading and unloading coal wagon until noon when a fellow workman told him to stop as he did not look well. His only complaint was a slight pain in the abdomen. The patient walked to a doctor's office. The doctor gave him codein for what appeared to be a slight diaphragmatic pleurisy. There was nothing further found on examination except slight tenderness over the left upper abdomen. The pulse, temperature and respiration were normal and remained so during the next few days. On the third day the patient, without permission, sat up to eat his dinner. About noon the next day the patient suddenly felt "something give way" in the upper abdomen. He went into a state of collapse. There was marked pallor and thirst. The abdomen was considerably distended, with rigidity and spasm on the left side, especially in the upper half. There was also shifting dulness in the flanks. Under ether, the abdomen was opened through a high left rectus incision. There was at once an escape of large amounts of old and fresh blood. Quick exploration revealed a ruptured spleen which was bleeding profusely. Splenectomy was done. At the end of the operation the patient's condition was poor. Salt solution was given intravenously and the patient stimulated. He refused to allow transfusion. He died two days later. Examination of the spleen after removal showed the capsule loosened from the surface as if it had been lifted by a slow extravasation of blood from beneath. The peritoneal covering, capsule and spleen itself were torn through the middle, in a line running from the hilus backward to the posterior aspect, practically dividing the organ into two pieces.

Boston Medical and Surgical Journal, Boston

Feb. 27, 1919, **180**, No. 9

Need of More Frequent Roentgenologic Examinations, Particularly in Head Injuries. J. Shohan, Boston.—p. 235.

Colorado Medicine, Denver

February, 1919, **16**, No. 3

Surgical Treatment of Pulmonary Tuberculosis: Extrapleural Thoracoplasty. M. O. Shivers, Colorado Springs.—p. 27.
Influenza at Denver County Hospital. H. Sewall, Denver.—p. 33.
Birth Registration in Colorado. J. W. Morgan, Denver.—p. 38.
Roentgen Therapy for Superficial Malignancy: New Coolidge Tube Technic. H. P. Brandenburg, Denver.—p. 41.

Florida Medical Association Journal, St. Augustine and Jacksonville

January, 1919, **5**, No. 7

Papillitis. S. G. Gant, New York City.—p. 115.
Duty of Medical Profession to State Industrial School. R. Kime, Lakeland, Fla.—p. 117.

Medical Record, New York City

March 1, 1919, **95**, No. 9

Pneumonia: Major General of Death. C. N. Haskell, Bridgeport, Conn. —p. 349.
Six Years' Experience with Radiotherapy in Cancer. M. J. Sittenfeld, New York City.—p. 351.
*Myristica (Nutmeg) in Treatment of Amebic Dysentery. J. Leidy, Philadelphia.—p. 354.
Musk in Pneumonia. W. C. Allen, Chicago.—p. 356.
Peculiarities in Symptomatology of Exophthalmic Goiter. I. Bram, Philadelphia.—p. 358.
Case of Dermatitis Coccidiosa. J. Seliin, Chicago.—p. 360.
Five Bronchoscopic and Esophageal Cases. J. E. Sheehan, New York City.—p. 361.

Nutmeg in Treatment of Amebic Dysentery.—A dysentery patient who had resisted treatment with emetin was placed by Leidy on 30 grains of selected grated nutmeg three times a day, care being taken to obtain a pure extract. The effect of treatment on the subjective symptoms was decided and prompt; the frequent spasmodic (colitic) pain disappeared; three days later, examination of stools showed fewer cysts, with abatement of *Trichomonas intestinalis* infection. At the expiration of seven days very few cysts were found; the patient has shown steady improvement in his physical condition. Three weeks after treatment no cysts were found. Regular examination of the stools for the past four months, by the ether centrifuge method, has been negative, as to both the vegetative and the cystic forms.

Nebraska State Medical Journal, Norfolk

February, 1919, **4**, No. 2

Epidemic of Influenza and Pneumonia. M. G. Wohl, Omaha.—p. 49.
Botanist's Suggestion on Influenza. F. E. Clements, Tucson, Ariz.—p. 50.
Spanish Influenza. H. W. Saylor, Bruening.—p. 52.
Chronic Ophthalmia: Source of Frequent and Serious Mistake in General Practice. H. Gifford, Omaha.—p. 53.
Nitrous Oxid-Oxygen Analgesia in Obstetrics. A. L. Smith, Lincoln. —p. 54.

New Orleans Medical and Surgical Journal

February, 1919, **71**, No. 8

Spinal Analgesia, with Apothesine. P. J. Kahle.—p. 366.
Obturator for Congenital Cleft-Palate. A. G. Friedrichs.—p. 367.
Wounds of War from Biologist's Point of Observation. E. Bertarelli. —p. 368.

New York Medical Journal, New York City

Feb. 22, 1919, **109**, No. 8

"Higher Up" Theory of Sterility in Women and Relation to Endocrines. S. W. Bandler, New York City.—p. 309.
Psychic Hydrophobia. J. D. Quackenbos, New York City.—p. 313.
*Successful Nonsurgical Therapy of Exophtalmic Goiter. I. Bram, Philadelphia.—p. 314.
*Pertussis Vaccine as Routine Treatment in Whooping Cough. P. Luttinger, New York City.—p. 322.
Rolls (Somersaults) Before Breakfast. W. Brady, Elmira.—p. 323.
Essentials of Bárány Tests. S. Cohen, Philadelphia.—p. 324.
*Nocturnal Enuresis. J. A. Allis, New York City.—p. 326.
American Women's Hospitals in France. B. Hunt, Bangor, Me.—p. 328.
Sterile Pocket Instrument Case. F. Griffith, New York City.—p. 321.
Prophylaxis and Treatment of Influenza. L. T. de Sajous, Philadelphia.—p. 331. (Continued.)

March 1, 1919, **109**, No. 9

Fourteen Points Concerning Ophthalmia Neonatorum. F. Allport, Chicago.—p. 353.
Chronic Headaches with Painful Points. G. T. Stevens, New York City.—p. 355.
Carrel-Dakin Treatment. W. P. Cunningham, New York City.—p. 358.
Orbital Disease of Nasal Origin. E. L. Meierhof, New York City. —p. 365.
Linear Dermatoses. F. Wise, New York City.—p. 367.
Improved Bone Surgery Equipment. H. C. Masland, Philadelphia. —p. 370.
Removal of Foreign Bodies from Lung. J. W. Murphy, Cincinnati. —p. 372.
Prevention of Influenza by Maintenance of Uniform Room Temperature. S. L. Burton, Albuquerque.—p. 374.
New Principle (Sensitizer and Developer) for Treatment of Gonorrhea. F. S. Mason, New York City.—p. 374.
Prophylaxis and Treatment of Influenza. L. T. de M. Sajous, Philadelphia.—p. 375.

Nonsurgical Treatment of Exophthalmic Goiter.—The treatment used by Bram in the cases cited was hygienic, dietetic, medicinal, electrical and hydropathic. He insists that in the treatment of exophthalmic goiter, individualization is of inestimable importance. Rest, physical and mental, must characterize all treatment instituted in this disease. The maintenance of the digestive functions in as normal a condition as possible is of vital importance. In every case Bram gives quinin hydrobromate, 4 or 5 grains, three times a day, combined with an appropriate hematinic and a harmless sedative. He believes that such a mixture acts in a specific fashion, all things being equal.

Vaccine Treatment of Whooping Cough.—A further experience has confirmed Luttinger's belief that pertussis vaccine, when given in high doses and at the proper intervals is the best remedy for the prevention and cure of whooping cough. With the exception of very severe cases these patients received no other treatment but the vaccine. The usual hygienic precautions regarding fresh air and the regulation of feeding are taken. The doses are as follows for a child 1 year old: half a billion, 1 billion, 2 billion, 4 billion, 8 billion and 16 billion. The injections are given subcutaneously with an ordinary hypodermic syringe, every other day, an interval of five days being allowed between the third and fourth dose for recuperation. For prophylaxis, the first three doses are sufficient.

Nocturnal Enuresis in Adults.—The ages of the sixteen soldiers whose cases are cited by Allis ranged from 19 to 31 years. The treatment employed was varied to suit individual cases. As they were all consistently wetting their beds from one to three times a night they were awakened at intervals of about two hours, the time being lengthened as individuals showed improvement. Bowels and diet were carefully looked after. The most important part of the treatment, Allis believes, was the local application through the endoscope of varying strengths of nitrate of silver solution 1 to 5 per cent., varied at times with deep instillations of 2 or 3 drops of the same solution, or anterior irrigations of the urethra with a solution of silver one to 3,000 or 5,000. These treatments were given at intervals of about four or five days. In a few of the cases Allis gave belladonna and ergot internally in small doses, but apparently it did not help much.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

February, 1919, **27**, No. 2

Complications and Sequelae of Influenza. C. J. Fishman, Oklahoma City.—p. 25.
Cancer Problem; Roentgen Therapy. J. M. Martin, Dallas, Texas. —p. 34.
Common Hernias.—p. 37.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Feb. 8, 1919, **2**, No. 3032

*Sodium Morrhuate in Tuberculosis. L. Rogers.—p. 147.
Teaching Obstetrics and Gynecology to Medical Students. W. S. A. Griffith.—p. 148.
*Criticism of Some Modern Methods of Infant Feeding. G. D. Laing. —p. 150.
*Treatment of Early Syphilis. R. Gibson.—p. 151.
Prophylactic Treatment of Venereal Disease. A. Reid.—p. 152.
*Proflavine Oleate in Treatment of Open Wounds. C. Berkeley and V. Bonney.—p. 152.
Influenza Epidemic in Bristol. J. W. Taylor.—p. 153.
Influenza Epidemic in Bristol General Hospital: Use of "N. Pane's Siero Antipneumonico" for Prophylaxis and Treatment of Pulmonary Complications. A. J. Lim.—p. 154.
Use of Formalin Sprays in Checking Influenza Epidemic. A. Wylie. —p. 155.

Sodium Morrhuate in Tuberculosis.—By a similar process to that by which sodium gynocardate is made from chaulmoogra oil, a preparation has been made of the sodium salts of the unsaturated fatty acids of cod liver oil after extraction by ether. Rogers has termed this preparation "sodium morrhuate." A 3 per cent. watery solution is sterilized in an autoclave and 0.5 per cent. phenol is added. This may be injected subcutaneously with very little pain, and also intravenously. Its subcutaneous injection is nearly painless, and a year's experience has shown it to be of great value in leprosy. Rogers regards this as being a most important point,

as it proves that there is nothing absolutely specific in the products of chaulmoogra oil in that disease, and supports his view that the sodium salts of the unsaturated fatty acids of these two oils act in some way on the coating of the acid fast bacilli, that of tuberculosis having been shown to contain palmitic and other unsaturated fatty acids.

During the past year sodium morrhuate has been used with very promising results in tuberculosis by several careful observers, and morphologic changes have been noted in the tubercle bacilli in the sputum. Rogers usually begins with 0.5 c.c. of the 3 per cent. solution, and increases it by 2 to 4 minims at each injection, which may be given two or three times a week until a reaction occurs; then a week's interval is left and the dose reduced. The injections are given subcutaneously until they reach an inconvenient size, such as 2 c.c., when intravenous injections can be begun with 0.5 c.c., gradually increased in the same way as with the subcutaneous ones. Improvement of phthisical cases is seen in reduction and cessation of fever, diminution of expectoration and cough, and steady gain in weight: the tubercle bacilli in the sputum greatly decrease in numbers, and may in time disappear. Moreover, they commonly show deficient acid staining and a granular or beaded appearance, indicating that they are actually being destroyed within the tissues.

Improved Methods of Infant Feeding.—Laing urges greater quantities of food, and shorter intervals of feeding, depending on the size of the child, and its digestive powers.

Treatment of Early Syphilis.—Gibson uses mercury, arsenic compounds and potassium iodid. He says that mercury alone can cure many cases of syphilis if persisted in for a sufficiently long time, but it is questionable if a course of less than two years is of any value at any stage of the disease. With arsphenamin and its alternatives, however, the term of active treatment can be shortened greatly, and in the very early stages of the infection the disease can be aborted, although it may be advisable to keep the patient under observation for two years. Gibson believes that a positive reaction is indicative of syphilis in its secondary stage, and the disappearence of the positive reaction for six months after treatment with mercury has been discontinued is evidence of cure. He has not seen a case of secondary syphilis—which has not had any treatment—give a negative reaction; nor has he seen a case of secondary syphilis which gave a negative reaction for six months after treatment with mercury and arsphenamin was discontinued again develop a positive blood test, unless reinfected.

Proflavine Oleate in Treatment of Wounds.—Berkeley and Bonney draw attention to the value of proflavine oleate in the treatment of certain war wounds, notably those in which an exceeding tender raw surface of considerable extent exists, the dressing of which is productive of acute pain. Their method consists in either spreading a thick layer of the oleate ointment on a single thickness of white gauze and then applying it to the wound, or spreading the oleate direct on to the surface of the wound and then covering it with a single layer of gauze. This dressing does not need to be changed for several days, and, when it is removed, strips off from the sensitive surface without any dragging or pain. It is equally applicable to any large flat-surfaced wounds, such as those left after wholesale excision of the thigh or buttock muscles and so forth. The authors suggest that after all operations in which a flat raw surface is necessarily left, the wound should, from the first, be dressed with proflavine oleate, in the manner described.

Dublin Journal of Medical Science

February, 1919, **147**, No. 566

Ireland and a Ministry of Health. T. Hennessy.—p. 49.
Diagnosis and Treatment of Syphilis. G. E. P. Meldon.—p. 62.
Id. H. C. Donald.—p. 70.

Edinburgh Medical Journal

February, 1919, **22**, No. 2

Fracture of Neck of Femur in Children. D. M. Greig.—p. 75.
*Radium Treatment. D. Turner.—p. 79.
Scopolamin Morphin Narcosis or Twilight Sleep. R. Wallace.—p. 87.
Carcinoma of Liver Associated with Infection By Clonorchis Sinensis. H. L. Watson-Weymss.—p. 103.
Training of Student of Medicine: LXIV. Dental Surgery. W. Guy.—p. 105.
Id. LXV. Dental Surgery. J. H. Gibbs.—p. 106.
Id. LXVI. Ear, Nose and Throat. A. L. Turner.—p. 109.
Id. LXVII. Ear, Nose and Throat. J. M. Farquharson.—p. 111.
Id. LXVIII. Place of Radiology in Medical Curriculum: Need for Coordination in Teaching. R. Knox.—p. 118.

Radium Treatment of Exophthalmic Goiter.—One of the conditions for which Turner has found radium consistently useful is exophthalmic goiter. He has treated upward of fifty cases, and with one exception all of those patients have derived more or less benefit. The exception was a woman of 22 years of age, who suffered from extreme nervousness, and who died of hyperthyroidism and toxic phenomena within a fortnight of the treatment. The benefit that patients with exophthalmic goiter derive from the expert application of radium is reflected in their general condition and in their special symptoms. They regain strength, lose the tired feeling and put on weight, and at the same time the tachycardia, tremor, and breathlessness are diminished and may disappear altogether. The thyroid gland becomes harder, denser, but usually does not diminish in size, and the exophthalmos is but little affected. Turner treats each lobe, and the isthmus of the thyroid, and the thymus. A dose of from 200 to 400 milligram hours, properly screened so as to avoid injury to the skin, may be given over each of these areas, and the patient may then be sent home for some three months, when more treatment may, if necessary, be given. As the skin over the front of the throat appears to be very sensitive to radium rays, great care should be taken to avoid over exposing it.

Journal of State Medicine, London

February, 1919, **27**, No. 2

Anthropometry and National Health. A. Keith.—p. 34.
Care of Pensioners and Disabled Combatants in Relation to National Health and Wealth. J. Collie.—p. 43.

Journal of Tropical Medicine and Hygiene, London

Feb. 1, 1919, **22**, No. 3

*Etiology of Sprue, Pellagra and Scurvy.—L. Nicholls.—p. 21.
Sprue Associated with Tetany. P. W. Bassett-Smith.—p. 24.

Etiology of Sprue, Pellagra and Scurvy.—According to Nicholls, most of the circumstances connected with sprue support the view that it is caused by the infection of a micro-organism, whereas, scurvy is more or less dependent for its appearance on a lack of some necessary constituents in the diet, previously consumed by the sufferers; in these respects, pellagra falls midway between these diseases, and for every suggestion that it is an infectious disease, a considerable opinion exists that its etiology is explained by the nature of the patient's antecedent diet. Nicholls thinks that no cases of these diseases will occur unless both factors are present to some extent, but it must be remembered that the deficiency in a diet may be greater or less; and the degree of pathogenicity of an organism and the resistance to it varies. The latter is the predominant factor in sprue, and the former in scurvy, but they are fairly evenly balanced in pellagra.

Lancet, London

Feb. 8, 1919, **2**, No. 4980

Gizzards and Counterfeit Gizzards. J. Bland-Sutton.—p. 203.
Medical Aspects of Aviation. L. E. Stamm.—p. 206.
Some Simple Tests of Physical Efficiency. M. Fiack.—p. 210.
Treatment of Venereal Disease. A. Reid and P. H. Boyden.—p. 212.
*Hilus Tuberculosis in Adult. C. Riviere.—p. 213.
*Substitution of Air for Oxygen in Anesthesia. J. H. Fryer.—p. 216.
Stammering in War Psychoneuroses. E. Prideaux.—p. 217.
*Staining Diphtheria Bacillus by Toluidine Blue-Acetic Acid Mixture. P. L. Sutherland.—p. 218.

Hilus Tuberculosis in Adult.—The term hilus tuberculosis in the adult as used by Riviere refers to a fresh and active process, involving the deep areas of the lungs where remain the old foci of childhood infection, and thence spreading outward toward the surface. It thus stands in close relationship to the common form of tuberculosis of childhood, though with less tendency to glandular involvement; and also in decided

contrast to apical phthisis of adults, a localized infiltration involving the apex of the lung. Hilus tuberculosis is commonly a peribronchial disease of chronic and intermittent course. Such symptoms as are of toxic origin are identical for hilus tuberculosis and apical phthisis. In addition, certain symptoms occur which may be considered more characteristic of hilus tuberculosis than of apical phthisis. Particularly, shortness of breath on exertion is a symptom which is often prominent, and due in some cases to widespread peribronchial disease and in some to the emphysema and bronchitis which are occasional complications. Chest pain is also fairly common, often in the central regions of the chest, occasionally in the side in association with the marginal pleurisies which are such frequent accompaniments of this disease. Most important of all as evidence of deep disease is a bilateral narrowing of "Krönig's isthmus" of apical resonance at the top of the shoulder. The whole clinical history of the affection is discussed in detail by Riviere.

Substitution of Air for Oxygen in Anesthesia.—During a temporary failure in the supply of oxygen for anesthetic purposes, Fryer tried ordinary air in place of oxygen with the Hewitt apparatus. This proved so satisfactory that he has entirely discontinued the use of gas and oxygen, and some hundreds of administrations of duration varying from a few minutes to a full hour have been given by the air method. No ill effects have been noticed during or after administration, and there has not occurred any instance of postanesthetic vomiting. The limitations of this method are much the same as those of gas and oxygen, though it is easier to produce and maintain a satisfactory degree of muscular relaxation when using air. It is very easy to administer in cases where vitality has been reduced by shock, hemorrhage, or sepsis, while strong, full-blooded men are difficult subjects. Fryer has not so far used the method for intra-abdominal operations, and for intrathoracic he prefers oxygen bubbled through chloroform and warmed by the Shipway apparatus; but for amputations and most general surgical procedures it is well adapted unless postural requirements contraindicate by rendering it difficult to maintain the facepiece in position. This method has advantage over gas and oxygen from the points of view of economy and portability of apparatus.

Staining Diphtheria Bacillus with Toluidin Blue Mixture.—The staining solution which Sutherland has used for eight years has the following composition: toluidin blue, 0.1 gm.; glacial acetic acid, 0.5 c.c.; distilled water, 100 c.c. The smears are made on slides and are fixed with heat in the usual way. When large numbers of cultures have to be examined it is most convenient to make the smears in a series of ten or twelve at one time. A drop of the stain is placed on each film and a coverglass is then placed over the preparation. The excess of stain is removed by blotting each slide between two layers of blotting paper immediately before being examined. The first slide is ready for examination about one minute after the stain is applied, and the others are taken in rotation. The best results are obtained by using strong artificial light. When slides are stained in this way the polar granules of *B. diphtheriae* are of a deep reddish purple, while the bodies of the bacilli appear faintly blue. Most of the organisms found in diphtheria swabs, including Hofmann's bacillus, are more faintly stained, so that *B. diphtheriae* is readily detected when present only in small numbers. The stain may also be used in a similar manner for demonstrating the bacillus in smears made direct from the swabs, in which case the film should be allowed to stand in the stain for from two to three minutes before removing the excess.

Medical Journal of Australia, Sydney

Jan. 4, 1919, **1**, No. 1

Effects of Hookworm Infection on Mental Development of North Queensland School Children. J. H. Waite and I. L. Neilson.—p. 1.
Pitfalls of Pregnancy. E. Ludowici.—p. 8.

Jan. 11, 1919, **1**, No. 2

Poliomyelitis; Pathology Notes and Experimental Study. R. Webster.—p. 22.
Cesarean Section (Abdominal) in Transverse Presentation. A. Krakowsky.—p. 28.

Jan. 18, 1919, **1**, No. 3

*Causes of Kidney Pain and Treatment: Exclusive of Stone, Tuberculosis and Infection. S. H. Harris.—p. 41.
*Improvement in Technic of Perineal Capsulo-Prostatectomy. L. M. McKillop.—p. 48.
Case of Angioneurotic Edema, Combined with Urticaria with Purpuric Staining, Raynaud's Disease and Scleroderma. H. Swift.—p. 49.

Jan. 25, 1919, **1**, No. 4

*Influenza Epidemic in Dunedin, New Zealand. S. T. Champtaloup and A. M. Drennan.—p. 63.
Microbes Ostensibly Responsible for Pneumonic Influenba. F. Tidswell.—p. 69.
Influenza in New Zealand. J. P. Hastings.—p. 70.
Influenza and Other Epidemics. C. MacLaurin.—p. 71.

Causes of Kidney Pain and Treatment.—Harris cites cases of stricture of the ureter, renal tumor, obstruction of ureter at ureteroplevic junction by aberrant vessels, fascial bands, etc., ureteral obstructions from tumors in the abdomen and pelvis (e. g., uterine fibroids, cancer of the cervix uteri, etc.); certain bladder lesions, e. g., benign and malignant growths, diverticula, etc.; seminal vesiculitis; inflammatory conditions of the broad ligaments and of the appendix; obstruction of the urethra by syricture, prostatic hypertrophy, median bar formation as causing kidney pain. The treatment in each instance is outlined.

Prostatectomy.—The procedure which McKillop has employed in three cases is said to render the operation safer and more rapid of accomplishment. The space of Retzius is exposed through an abdominal incision. A gauze sponge in keeping with the size of this space is tightly packed in position, so as to push the bladder well down toward the perineum. The usual curved transverse incision is next made across the perineum and deepened until the perineal muscles are met with. The plane of cleavage between the rectum and the bulb is sought for and opened up. The prostate gland will be found lying low in a most accessible position. The dissection is further deepened until the false capsule is exposed; it must be continued externally to that structure. Counter pressure is made over the hypogastric swab until the prostate is pushed down almost flush with the perineum when the subsequent steps are carried out under the guidance of the eye. The bleeding, which in these cases is usually a source of much danger, can be controlled with the greatest ease. The puboprostatic and the lateral true ligaments of the bladder are cut through, and with a little care the finger is hooked over the pelvic fascial capsule and the gland separated from the base of the bladder external to the internal sphincter. When further separation is impossible the bladder wall is cut through in a circular manner. The vasa deferentia and the membranous urethra, with its contained catheter, are then completely divided and the prostatic capsule and its gland removed in toto. A fresh, large-sized catheter is passed down the urethra, to replace the divided one. The new catheter is guided into the bladder. All bleeding points are very carefully caught and ligated, and the redundant portion of the bladder wound closed with catgut, care being taken to avoid catching up the bladder mucosa. A gauze drain in a split tube is introduced down to the base of the bladder. Iodoform gauze is packed firmly about this, and the lateral portion of the transverse perineal wound united by silkworm-gut sutures. The gauze packing in the perineal wound is taken out and replaced in forty-eight hours, and the tube is removed on the fourth day. The indwelling catheter is changed daily after the first week, and sounds are susequently passed.

Vaccine Therapy of Influenza in Dunedin.—It is claimed by Champtaloup and Drennan that inoculation with a vaccine composed of the chief causative organisms may or may not protect against infection. The length of the immunity conferred is doubtful. It is probably short. To effect a cure the vaccine is practically proved to be of extreme value in controlling the disease and limiting complications. The first dose (80 to 100 millions of mixed vaccine) is given as soon as possible, 400 millions seven days later, and another dose three days later, if all goes well. In severe cases larger doses are given intravenously. For the rest, the treatment is symptomatic.

Sei-I-Kwai Medical Journal, Tokyo

Dec. 10, 1918, **37**, No. 12

*Spiral Bodies Found in Walls of Stomach. M. Terada, Y. Yasaki, G. Kwai and M. Okazaki.—p. 55.
Diagnosis and Treatment of Injury of Eyeball. K. Hirota.
Psychologic Heart Illness. S. Morita.
Human Character and Morality. T. Inouye.

Spiral Bodies Found in Walls of Stomach.—In one case out of eighteen stomach cancers and in one case out of nine stomach ulcers, the authors found typical spiral bodies in the circular muscle layer of both cases. These spiral bodies stained blackish brown with Levaditi's silver impregnation and existed in great numbers without the presence of any other bacteria. On the contrary, the other saprophytic bacteria existed only in the mucous membrane which was undergoing necrosis and never invaded the deeper lying healthy tissue; in the necrosed mucous membrane were detected few spiral bodies. Further, on examinating the blood vessels of the mucous and of the muscle layer, many spiral bodies and saprophytic bacteria were seen around the vessels, but in the walls and emboli of blood vessels only the spiral bodies have been found and the same in the serial sections. The size of these spiral bodies was comparatively equal in every part of an individual, the turns fairly regular and the contour very sharp. It is not yet settled whether these spiral bodies are found in healthy or normal stomachs.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 29, 1918, **42**, No. 33

*Serious Hemorrhages in Course of Influenza. Lesné.—p. 1080.
*Choreiform Movements after Influenza. Marie and Others.—p. 1081.
Roentgen Diagnosis of Diverticuli in Colon, and of Gallstones. J. T. Case (Battle Creek).—p. 1087-1088.
*Gynecomastia after Injury of Testicle. Apert and Declèty.—p. 1091.
*Bacteriologic Diagnosis of Dysentery. G. Loygue, H. Bonnet and E. Peyre.—p. 1096.
*Spirochetosis in Course of Influenza. Id.—p. 1099.
Streptococcus Congestion of Lung. Trémolières and Durand.—p. 1103.
*Cupping Glass Sign of Incipient Measles. F. Trêmolières and Servas.—p. 1105.
*Gage of Wassermann Reaction. P. Gastinel.—p. 1108.
Fuso-Spirilla Gangrene of Lung. J. Paraf.—p. 1111.
*Reducing Power of Cerebrospinal Fluid. Weissenbach.—p. 1113.
Exertion Tachycardia in Estimation of Heart Capacity. P. Merklen and L. Descluax.—p. 1117.

Hemorrhages in Influenza.—In some of Lesné's cases of influenza severe hemorrhages were an early symptom of the disease. One child of 9 had such severe capillary hemorrhages in the nose that when the nostrils were tamponed the blood poured into the stomach and was vomited up or passed off by the bowels. One young woman passed pure blood from the intestines, with fever, as for some days the only symptoms of influenza. These capillary hemorrhages indicate a vasodilating action by the disease toxins, he declares, and justify the use of epinephrin in large doses.

Choreiform Movements After Lethargic Encephalitis or Influenza.—Marie reports ten cases of this type, Souques four, and Netter three. In some the choreiform movements were unilateral. In all they had developed after a febrile episode, certain features of which suggested lethargic encephalitis.

Gynecomastia Consecutive to Wound of Testicle.—A scrap of shell had been driven through the scrotum. The lesion soon healed, but the right breast began to develop and soon reached the size of the breast of a girl of 15. It was resected and found normal in every respect except that it was on a man of 25 instead of on a female.

Bacteriologic Diagnosis of Dysentery.—Loygue obtained a positive serodiagnostic response in eighty-six of 150 cases of dysentery, while the bacteriologic findings were positive only in sixteen with the Shiga bacillus. The serodiagnostic tests were constantly negative in all the pathologic conditions other than dysentery.

Spirochetosis in Influenza.—Loygue and his co-workers found spirilla in the sputum in fourteen of twenty-seven grave cases of influenza terminating in recovery, and also in four fatal cases. One of the men had been suspected of tuberculosis. In one of the patients the spirochetes were found also in the urine.

Cupping Sign of Measles.—The cupping glass applied to measles contacts and suspects is a useful corroborative sign, but it is not pathognomonic. It was positive only in twenty-six of twenty-eight cases of known measles, and was positive only in a few during the day or two before the appearance of the eruption.

The Antihemolytic Index of the Wassermann Reaction.—Gastinel describes the simple technic with which it is possible to evaluate the differences between reactions which to the eye seem identical but in reality differ considerably. The method is based on precision titration of the alexin in a set of six test tubes.

Reducing Power of Cerebrospinal Fluid.—Weissenbach ascribes to the leukocytes the predominant rôle in the disappearance of the reducing power. The presence of microbes is not able, alone, to induce the disappearance of the reducing power. Other factors are the permeability of the meninges and the species of microbe involved, but the afflux of leukocytes is the principal factor. In two of his cases of microbian meningitis, there was no leukocyte reaction although the fluid was swarming with pneumococci or Friedländer bacilli, but the reducing power was normal or nearly so. In other cases there were numerous germs and from 1,000 to 2,000 leukocytes per cubic millimeter and the reducing power was normal or nearly so. On the other hand, the reducing power disappears with aseptic puriform meningeal conditions with great afflux of leukocytes but no microbes. Hence the reducing power is no index as to the septic or aseptic state of the fluid. The reappearance of the reducing power, however, in the course of a purulent meningitis is a favorable sign, as it indicates that the living germs are disappearing and that the afflux of leukocytes is declining. Both of these are signs of recovery if the subarachnoid space has not been partitioned off.

Lyon Médical

January, 1919, **128**, No. 1

The German Intellectuals. B. Lyonnet.—p. 5.
Malaria in Morocco. L. Langeron.—p. 9. Cont'n.
*Disturbances in Eyes After Vaccination against Typhoid. Bussy.—p. 20.
*Law of Action of Diuretics A. Mollière.—p. 23.

Eye Disturbances After Vaccination Against Typhoid.—Bussy had charge of the ophthalmologic service in a section where 22,000 troops were vaccinated against typhoid. Five of the men developed ocular lesions thereafter, suggesting the advisability of testing the blood pressure as well as examining the urine before vaccinating against typhoid. Two of the men had kidney disease but it was latent and difficult to detect. After the vaccination, one developed albuminuric retinitis and died of uremia two months later. He was a man of 45. The other patient presented severe hemorrhages in both retinas after the vaccination. The three other men developed herpes and ulceration of the cornea, but they recovered without impairment of vision.

Law of Action of Diuretics.—Mollière remarks that the enunciation of laws in medicine has gone out of fashion. We have learned that Dame Nature does not always conform to these laws, but the one on the action of diuretics deserves consideration. Dupasquier in 1830 declared that the action of diuretics is always in inverse proportion to the sum total of the fluid collected in the peritoneum and the state of irritation of the gastro-intestinal passages. Hence with ascites or general edema, before expecting effectual action from diuretics we must tap the ascitic fluid and purge. After this the diuretic will prove effectual when it may have been of no benefit before. A diuretic should be chosen, however, that does not act on the bowel, as this might set up diarrhea.

Paris Médical

Jan. 11, 1919, **9**, No. 2

*Instability of the Nervous System. E. Dupré.—p. 34.
*Contagious Phase of Whooping Cough. P. Lereboullet.—p. 44.

Jan. 18, 1919, **9**, No. 3

Wounds of Fingers and Toes. P. Descomps and Ducastaing.—p. 50.
Apparatus for Fractured Thigh. G. Gross and L. Grimault.—p. 53
*Intensive Serotherapy. G. Schreiber.—p. 55.
Habitual Drunkenness and the French Laws. Legrain.—p. 60.

Constitutional Instability of the Nervous System.—This is the inaugural lecture of Dupré's course on mental diseases. He enumerates eight groups of constitutional morbid tendencies which form the basis for most of inorganic pathology. Mental disease is often the systematization, the crystallization of the constitutional anomaly. Knowledge of the latter throws light on the diagnosis and prognosis, and consecrates the importance of the conceptions of heredity, degeneration and predisposition.

Contagious Phase of Whooping Cough.—Lereboullet cites the results of recent extensive research by himself and others which have apparently demonstrated that whooping cough is contagious from the very first, but that this contagious phase does not last long. Children who have been exposed should be isolated as soon as they begin to cough at all, not waiting for the characteristic spasmodic cough. When possible, the pertussis microbe should be sought in the sputum. Any persisting cough in adults or children who have been in contact with whooping cough should also be regarded with suspicion, as the severe form of the disease may be transmitted from the mildest abortive type, a *coqueluchette*. On the other hand, there is no reason for keeping the child or adult isolated after four weeks or even less, although the paroxysmal cough may still be severe. Five weeks is the extreme limit, and a change of air may safely be recommended then without dread of contagion, or the child, if in the hospital, can be allowed to return home. The alleged return cases from old whooping cough cases can always be traced to the intermediation of healthy carriers or of persons having the disease in such an abortive form that it escapes recognition. By letting the child cough on a Petri dish, the presence of the Bordet-Gengou bacillus was determined early in the catarrhal stage in 5 of 7 cases and in 27 of a further group of 32. In none of the positive cases was the diagnosis certain at the time. Tests of other suspects who proved not to have whooping cough were constantly negative. In a group of 33 at the second or third week of the disease this "droplet projection culture test" was negative in 9, as also in 9 of 27 after three or four weeks, and in 66 of 69 who had been coughing for four or five weeks. It was positive only in one between the fifth and sixth weeks.

Intensive Serotherapy.—Schreiber's experience in this line during a year's work in a military contagious hospital has amply demonstrated, he affirms, the harmlessness of serotherapy in massive doses, and also the curative value of antitetanus serum. Fully 10 per cent. of the men had been wounded at some time and given preventive antitetanus injections, and yet he never witnessed the slightest phenomenon even remotely suggesting anaphylaxis with his thousand injections of antiserums of all kinds and by all routes. He reaffirms that in practice anaphylaxis can be completely disregarded, and serotherapy can be applied in progressive doses without apprehension. In four cases of tetanus, three of the men recovered under serotherapy plus the usual symptomatic measures. The antiserum was given subcutaneously and intraspinally, from 30 to 100 c.c. a day, with a total dose of from 100 to 650 c.c. except in the fatal case in which only 60 c.c. had been injected in all, and only by the subcutaneous route. An arthralgia of the temporomaxillary joint developed after injection of antitetanus serum in two cases but proved briefly transient.

Presse Médicale, Paris

Jan. 23, 1919, **27**, No. 4

*Reconstruction of Nose. H. Caboche.—p. 29.
*Antipneumococcus Serotherapy in Pneumonia. V. Lassance.—p. 30.

Reconstruction of Nose.—Caboche gives an illustrated description of technics for rebuilding the nose after destructive processes or war wounds. He uses flaps from the tissues around and sometimes an additional cartilage graft.

Antipneumococcus Serum in Treatment of Pneumonia.—Lassance has applied this treatment in seventy-one cases of acute pneumonia, three of generalized pneumococcus infection and eight of bronchopneumonia. In the latter group no effect from it could be detected, but in all the other cases the results were highly favorable. He gives an injection of 50 c.c. or even 60 or 70 as soon as he recognizes pneumonia, and follows with 40, 30 and 20 c.c. the next few days until the second or third after the drop in the temperature. Defervescence is precipitated by the serum and the course of the fever is modified, while the symptoms from the toxemia are rapidly attenuated. The anatomic state of the lung was not modified in his cases, but the number of complications was much below the average under other treatment, and they were comparatively mild. The average death rate in pneumonia is 12.9 per cent.; in the serum treated cases it was 7.5 per cent. and one of the patients who died had a double aortic lesion. Of course this antiserum has no action on streptococcus complications.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Jan. 18, 1919, **49**, No. 3

Pathologic Anatomy of Influenza. C. Wegelin.—p. 65; A. Glaus and R. Fritzsche.—p. 72.
The Kidneys with Mercuric Chlorid Poisoning. M. Askanazy and T. Nakata.—p. 80.

Annali d'Igiene, Rome

Dec. 31, 1918, **28**, No. 12

Natural Defence of Guinea-Pig Peritoneum against Cholera Vibrios. G. Sanarelli.—p. 653.
Spreader for Microscopic Specimens. D. Maestrini.—p. 656.

Gazzetta degli Ospedali e delle Cliniche, Milan

Jan. 5, 1919, **40**, No. 2

*Rational Organotherapy. G. Ghedini.—p. 9.
*Sputum Vaccine in Influenzal Pneumonia. G. A. Pari.—p. 12.

Organotherapeutics.—Ghedini insists that instead of using the extracts of organs we should use the venous blood issuing from the organ. This contains the true internal secretion while the cells of the organ cease secreting this product when they are dead. Hence the removal of the organ from the body to make the extract not only arrests production of the internal secretion but probably modifies essentially the delicate secretion already on hand in the tissues of the organ. Instead of a living secretion we get only a dead and possibly decomposed product. The efferent blood contains the secretion in its maximum vital potency. He published in 1911 research on the thyroid secretion thus obtained in the efferent blood, and in 1913 and 1915 similar research on the venous blood from the suprarenals, pancreas, and testicles. Manfredi announced in 1913 that the efferent blood from the pancreas inhibited certain actions of epinephrin. He cites further research since by Ollini, Masera, Durand and eight others. The difficulty of obtaining the efferent blood or lymph hampers and limits the research in this line, but this should be the goal toward which we strive.

Sputum Extract in Treatment of Influenza Pneumonia.—Pari calls the vaccine made from sputum, a pyovaccine. The charts are given of several of twenty-four patients treated in this way. The sputum from twenty severe cases was diluted with saline sterilized in the autoclave and 1 c.c. was injected; forty-eight hours later 2 c.c.; two or three days later 3 c.c., with possibly a fourth injection of 4 c.c. The results were very encouraging. The men were at the fifth to the twelfth day of the fever and the temperature always dropped after each injection, while albumin never appeared afterward in the urine and if it was already present it disappeared. The cases with unusual complications did not show the same benefit; in these cases an autogenous vaccine from the sputum would be preferable. He is convinced that this pyotherapy is destined to an important place in therapeutics. It has already established its usefulness in whooping cough, Kraus' antitossina being based on this principle.

Policlinico, Rome

Jan. 5, 1919, **26**, No. 1

The Prophylaxis of Influenza. L. Verney.—p. 2.
Congenital Hypoplasia of Heart and Aorta. U. Sarri.—p. 9.
Hygiene of the Mouth. B. De Vecchis.—p. 11.

Jan. 19, 1919, **26**, No. 3

Treatment of Influenza. G. Dragotti.—p. 65.
*The Blood in Influenza. D. Maestrini.—p. 70.
Raynaud's Disease after War Wound of Hand. F. Sabatucci.—p. 70.

The Blood in Influenza.—Maestrini refers to the blood during influenzal bronchopneumonia. The serum seemed to have completely lost the faculty of precipitating colloidal silver. In influenza without pneumonia the blood behaves like normal blood in this respect. It is possible that the electric charge is responsible, as colloidal silver has a negative electric charge. It is precipitated by normal human serum, adding 20 or 30 drops of the serum to 10 c.c. of a 1:500 aqueous solution of the silver salt.

Riforma Medica, Naples

Jan. 4, 1919, **35**, No. 1

*Adhesive Tuberculous Pericarditis. A. Cardarelli.—p. 2.
Influenza Among Factory Workers. E. Tedeschi.—p. 4.
*Plastic Motor Operations. A. Pellegrini.—p. 6.
The Sanitary Problems of Aviation. G. Gradenigo.—p. 8.
The Roentgen Rays in Ophthalmology. N. Scalinci.—p. 10.
The Metabolism of the Amino-Acids. A. Azzi.—p. 11.

Tuberculous Pericarditis.—Cardarelli based his diagnosis in the case described on the enlargement of the liver and tracheobronchial glands, the cyanosis and the edema in the legs. These features of the case testified to impeded return of the venous blood to the heart. There was no murmur or effusion, and the rhythm was normal, consequently this seemed to exclude all forms of heart disease except adhesion of the sheets of the pericardium. This explained the extreme enlargement of the liver but there was no history of rheumatism in the case. The enlarged tracheobronchial, axillary and inguinal glands and bilateral pleurisy with effusion stamped the heart disease as probably tuberculous, although the tuberculin test was negative and there was no fever or loss of flesh. The lymphatics provide an easy path for spread of a tuberculous pleural infection to the pericardium. It has been his experience that in these cases of adherent pericarditis the heart displays a tendency to shrivel when the trouble is of tuberculous origin, while it tends to become hypertrophied when due to rheumatism. The latter injures the valves and sets up a further vicious circle, all of which is lacking in the tuberculous form. In the case described he gave no heart tonic but only purgatives and diuretics. This reduced the blood pressure, greatly relieving the patient, the cyanosis subsiding almost completely, and the condition keeping fairly good under repose and a light diet, but a cure cannot be anticipated.

Vitalization of Artificial Limbs.—Pellegrini now has a record of twenty-seven plastic motor operations, and he has compiled seventy-eight others from Italian literature. His own primary cinematic amputations include one "key" plastic motor operation, twenty "loop" operations and one with "key" plus "loop." In three cases the outcome was not satisfactory, but in all the others the cinematization was a success. The lifting power of the motors thus provided ranged from 15 kg. cm. to 50 kg. cm., and is still increasing so that 100 kg. cm. is anticipated in the near future. His experience teaches the advantages of a "loop" over a "key"; of lateral rather than terminal motors; of alternating instead of single motors, and the superiority of skin bridge flaps over pedunculated flaps.

Rivista di Clinica Pediatrica, Florence

December, 1918, **16**, No. 12

*Malignant Tumor in Child Kidney: Three Cases. F. Rossi.—p. 617.

Malignant Tumors of the Child Kidney.—Rossi reviews the literature on this subject and reports three cases. There are only a few instances of operative cures on record and recurrence is frequent, but an operation is the only means of possible relief and the success in one of his cases justifies high hopes with radical intervention. In one of the cases on record the tumor compressed the ureter from the other kidney, inducing hydronephrosis in this, and the urine from the sound kidney found its outlet through the sarcomatous kidney, the ureter from this being still permeable. Enlargement of the kidney is always the first symptom of the malignant disease in children. Hematuria is not always present, and pain is an unreliable element in the differential diagnosis. His first two cases were in children of 2; one was inoperable, but the other child recovered and seems still in perfect health, eight years since the nephrectomy. The tumor was a round cell sarcoma, weighing 600 gm. The child had been apparently healthy until two months before the operation. He removed the tumor likewise in the third patient, a girl of 8, and the child seems well but the interval since has been too short for the ultimate outcome to be known. In deciding whether the tumor was in the kidney or spleen he found instructive the appearance of a zone of resonance in front of the tumor when the intestine was inflated. This resonance is not encountered with a tumor in the spleen. A tumor in the intestine or mesentery generally runs a very rapid course, entailing cachexia early. Such tumors also are extremely movable while a tumor in the pancreas is not movable. A conglomerate of tuberculous glands might prove misleading, but almost invariably tumefied glands or other symptoms elsewhere would give the clue. A congenital cystic kidney may also simulate a malignant tumor. In a case of this kind, a hard elastic tumor in the kidney region, movable with respiration but without fremitus or resonance in front, without eosinophilia, the blood pictures and urine normal, was shown by exploratory puncture to be a cystic tumor implanted on the large right kidney. The left kidney was missing. Smooth recovery followed excision of the tumor.

Tumori, Rome

July-September, 1918, **6**, No. 3

*Diet to Promote Retrogression of Tumors. E. Centanni.—p. 153.
*Myomatous Tumors of Stomach. F. Nassetti.—p. 172. Conc'n.

Dietetic Treatment of Cancer.—Centanni's article was summarized in THE JOURNAL, Oct. 26, 1918, p. 1446, when published elsewhere. As stated in the abstract then, he declares that the results realized by his experiments constitute the most definite that have been accomplished by modern cancer research to date. He reiterates further that there are always two factors involved in malignant disease, the special local anomaly, which imparts to the cells the capacity for tumultuous multiplication, and the lack of adequate defensive forces which normally would check any such tendency to unbridled proliferation. From this point of view, cancer may be classed as a constitutional disease. The constitutional defect is revealed by the inability to curb the tumor growth. In his dietetic experiments he aimed to suppress from the food or denature by excessive heating only those elements which promote growth. He removed the larger part of the tumor and then, under the dietetic restrictions, what was left of the tumor gradually atrophied instead of developing recurrence as otherwise would occur. As Ehrlich said, the fate of a tumor is determined by the differential of reciprocal nutritive avidity between the cells of the tumor and the other cells of the organism. This differential is extremely variable but, in any event, tonics and strengthening diets, especially milk, act in malignant disease like throwing oil on the fire. The human organism is peculiarly susceptible to dietetic deficiencies, and this promises well for dietetic influencing of cancers, especially when supplemented with other growth-depressing agencies.

Myoma of the Stomach.—Nassetti found among 140 myomatous gastric tumors on record, 58 simple myomas and 37 fibromyomas, 6 adenomyomas and 1 myxomyoma. All the others were of a mixed sarcomatous nature except 9 listed as malignant myoma. The clinical and histologic findings in each group are reviewed, with twelve plates of illustrations. Operative treatment is the only rational measure; in 40 operative cases tabulated from the literature the tumor was in the submucosa in 8 of the cases. One death is recorded in this group and in 9 in the subserosa cases. Pneumonia or embolism was responsible for at least 4 of these 10 fatalities. He gives colored plates of 2 large pedunculated myosarcomas growing from the outside of the stomach. Four pages of bibliography are appended.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

December, 1918, **1**, No. 12

Mineral Waters and Spa Treatment in Stomach Disease. R. Pinilla.—p. 561.
Operative Treatment of Gastric Ulcer. R. Lozano.—p. 567.
Chamomile in Therapeutics. V. de Castro.—p. 577.

Medicina Ibera, Madrid

Dec. 7, 1918, 5, No. 57

*Influence of Influenza on Pulmonary Tuberculosis. Triviño.—p. 233.
Solution of Chlorinated Soda in Otology. A. A. Ramos.—p. 235.

Dec. 14, 1918, 5, No. 58

*Influenza. R. Velasco.—p. 261.
*Radiologic Findings with Duodenal Ulcer. S. Carro.—p. 263.
Transcendental Psychology. A. S. Herrero.—p. 265.

Dec. 21, 1918, 5, No. 59

General Principles for Examination of the Eye. J. Gonzales.—p. 289.
Conception and Limits of Degeneration in Psychiatry. R. A. G. Salazar.—p. 292.
Syphilitic Myocarditis. G. Triviño.—p. 295.

Dec. 28, 1918, 5, No. 60

*Spasm of Muscles of Orbit. J. M. Villaverde.—p. 317.
Milk as Vehicle for Iodin. A. S. Alvarez.—p. 322.
Ulceration from Vascular Lesions. Sicilia.—p. 325.

Influence of Influenza on Pulmonary Tuberculosis.—Triviño remarks that among the applicants at the dispensary in his charge there were last year 160 with pulmonary tuberculosis. Influenza had an unmistakably unfavorable action on many with "closed" tuberculosis, tubercle bacilli appearing in the sputum afterward. Chronic cases, however, did not seem to be influenced. An exceptionally large number of new patients with pulmonary tuberculosis are applying to the dispensary of late, all referring the onset of their disease to the period of epidemic influenza last spring. Most of them affirm that they were healthy until then.

Influenza.—Velasco reports two cases in which influenza deceptively simulated acute appendicitis. One of the patients died in forty-eight hours, the symptoms suggesting peritonitis. In several other cases there were absolutely no symptoms of influenza except moderate fever and delirium. Acute mania would have been the diagnosis if it had not been for the fever. In one lad of 17 the influenza passed through several phases, first a chill and severe intestinal hemorrhage, then a calm followed by symptoms of pneumonia, with subsidence of all symptoms the fifth day. Three days later the temperature ran up again, and the digestive apparatus was the storm center for two weeks. Then came a week of calm and normal temperature, and then a new phase of pneumonia, with final recovery. Calcium chlorid for the hemorrhage and diphtheria antitoxin were the main reliance in treatment, besides physical measures.

Radiologic Diagnosis of Duodenal Ulcer.—Carro regards as of diagnostic import the sagging of the pylorus, tenderness in the duodenal region, and increased gastric peristalsis. He has diagnosed a duodenal ulcer in many cases, confirmed later, in which there was nothing in the roentgen picture to suggest such a process. On the other hand, the roentgen rays have sometimes corrected his mistaken diagnosis of some affection other than duodenal ulcer.

Spasm of the Muscles of the Eyelids and Back of Neck.—Villaverde has been unable to find on record a case similar to the one he describes. An isolated spasm of the orbicularis palpebrarum compels the man of 59 to throw his head back in order to see, and the consequence of this is a spasm of the muscles of the back of the neck. The other muscles innervated by the facialis seem normal.

Prensa Medica Argentina, Buenos Aires

Dec. 20, 1918, 5, No. 20

*Clamps in Surgery. E. Finochietto.—p. 197. Cont'n.
*Projectile in Centrum Semiovale. R. Solé.—p. 199.
*Case of Lymphadenoma of the Mediastinum. R. Lopez and J. B. Mendy.—p. 201.
*Typhoidin Reaction in Typhoid. S. Mazza.—p. 203.

Dec. 30, 1918, 5, No. 21

Exanthem with Influenza. A. H. Roffo.—p. 205.
*The Brain with Senile Dementia. N. Rojas.—p. 207.
*Hexamethylenamin by the Vein in Typhoid. L. Ymaz and L. Ayerza.—p. 215.

Clamps in Surgery.—Finochietto's long continued article has reached its sixty-first illustration of various modern devices for clamping, tying knots, crushing, etc.

Projectile in the Corona Radiata.—Solé noticed that the left arm did not show signs of paralysis until the twentieth day after the man had been shot from above in the right frontal region. There was no tendency to spasmodic contraction but the left leg dragged a little. The projectile was shown by the roentgen rays to be in the corona radiata, 2 or 3 cm. from the cortex, near the fissure of Sylvius. As the symptoms had been so long in developing and as they manifested a progressive course, the bullet was removed. It was reached through an incision in the cortex just above the fissure of Sylvius, close to the avascular edge of the circumvolution. The incision was 3 cm. long and 1 cm. deep and with a fine probe the bullet was located toward the center of the base of the brain, at a depth of 5 cm., by the resistance to the probe. There was not the expected click, as the bullet was found partly covered with adherent tissue. He did not attempt to suture the dura mater. The operation was done under local anesthesia and the patient answered questions without complaint of much discomfort. The previously lax monoplegia changed to spastic temporarily. There was no complaint of headache but vomiting kept up for three days. Then a change was made from fluid food to a thick tapioca dish and the vomiting stopped at once. The paralysis of the arm progressively subsided, the man being now able to raise his hand to his head and the strength returning to his arm, but the facial paralysis still persists.

Malignant Tumor in Mediastinum.—In Lopez' case the woman of 35, previously healthy, suddenly developed dyspnea and vascular disturbance with subdulness presternal and at the base of the right lung. The assumption of cancer was confirmed by necropsy within two months. The rapidly fatal lymphadenoma had not involved the other glands in the mediastinum.

Typhoidin in Diagnosis of Typhoid.—Mazza's experience with this reaction failed to demonstrate any diagnostic value for it.

The Brain with Senile Dementia.—Rojas reproduces the microscopic findings in brains with senile dementia.

Hexamethylenamin by the Vein in Typhoid.—Ymaz and Ayerza in this instalment of their article state that a physiologically isotonic solution is made of hexamethylenamin by dissolving it in a 4 per thousand salt solution. The preferable concentration seems to be a 30 per cent. solution in the 4 per thousand saline. If heated too much the solution becomes hemolytic, but this does not occur when heated merely to 70 C. for three hours in all, an hour at a time.

Repertorio de Medicina y Cirugia, Bogotá

December, 1918, 10, No. 3

Influenza in Colombia. J. M. Montoya.—p. 113.
*Reconstruction of Urethra with Saphenous Vein. Z. C. Duran.—p. 116.
*Scarlet Fever at Bogotá. J. del C. Acosta.—p. 139.

Reconstruction of Urethra with Saphenous Vein.—Duran was impressed by the advantages of this plastic operation as successfully done by Legueu in 1916. Duran has applied the method himself in two cases, the success in one equalling that realized by Legueu. He has been unable to find any records of other successful operations of the kind, so he thinks that his case should rank as the second. The patient had several fistulas in the perineum, relics of urinary abscesses from stricture of gonorrheal origin. There was a gap of 1.5 cm. in the urethra after resection of the strictures. After dilating the stumps of the urethra and isolating these stumps, he resected a segment, 8 cm. long, in the saphenous vein in the triangle of Scarpa. This segment was then drawn over a bougie and placed in a jar with tepid Hayem artificial serum. Then it was implanted in a tunnel made out of the tissues of the perineum, drawing the skin up over it, instead of boring a tunnel with a trocar as Legueu does. In other respects he followed the latter's technic exactly. In his second case preexisting cystitis and fistulas, with enlarged prostate and incontinence, necessitated long preparation for the plastic operation, but it proved a complete success at last although supplementary urethrotomy had been required. It is the first time that a urethrotomy has been done on the urethra made from the saphenous vein. In this case the segment of

vein was found narrower than expected, and it had to be well stretched before it could be used. There were also three anastomoses which had to be ligated when the 12 cm. segment was resected. In spite of these drawbacks, the reconstructed urethra is a complete success, no fistula being left, although the slight preexisting incontinence still persists.

Scarlet Fever in Bogotá.—Acosta warns that scarlet fever is becoming more common in Bogotá where it used to be very rare and appear in mild, incomplete forms. The cases seem to be growing more frequent and the type more severe. In dubious cases, the diagnosis is facilitated, he says, by the presence of bile pigment and Bence-Jones albumose in the urine. The albumose is abundant during the first two or three days but gradually disappears by the fifth or sixth day. It is a simple matter to determine its presence as it is precipitated by nitric acid, cold, and dissolves anew on heating. By pouring carefully the filtered urine on a little nitric acid, not allowing them to mix, the green ring characteristic of bile pigment forms and below it the yellowish white precipitate. The latter disappears on heating the tube but forms anew as it cools. Acosta does not know whether the albumose which he found constantly in scarlet fever occurs in other diseases. Strict isolation is imperative, and the easiest way to realize this is by sending the other children away from the home. The isolation should be kept up for five weeks after the febrile period; some say for seven weeks.

Revista de Medicina y Cirugia, Havana

Jan. 10, 1919, **24**, No. 1

*Repeated Tubal Pregnancy. E. Chávez.—p. 1.
*History of Hygiene in Argentina. J. S. Fernández.—p. 9.

Repeated Tubal Abortion.—Chávez operated in 1916 for a ruptured two-month tubal pregnancy with severe symptoms. Both right tube and ovary were resected. Two years later the same clinical picture was presented anew, and the left tube was removed, leaving the ovary.

History of Hygiene in Argentina.—The text for Santos Fernández' remarks is the autobiography of Dr. E. R. Coni, which the Asociacion Medica Argentina has recently published as the first volume to appear in its Biblioteca Medica Argentina. It has been published in serial form in the *Revista* of the association, and, as already mentioned in these columns, forms the history of efforts for hygiene and public health in Latin America but especially in Argentina, where Coni has been a leader in all such movements since 1867.

Revista de Medicina y Cirugia Practicas, Madrid

Jan. 7, 1919, **122**, No. 1537

*Postinfluenzal Psychoses. E. F. Sanz.—p. 5.
*Acute Dilatation of Heart Consecutive to Trauma. U. Sarachaga. —p. 11.

Influenzal Psychoses.—Sanz' three patients with postinfluenzal psychoses were women between 22 and 34, inclined to nervousness or hyperemotionalism. The influenza was quite mild in two of the cases, lasting only three days. In one the psychosis was of the type of acute melancholia with suicidal tendency and refusal to eat. This patient had not recovered from excessive hemorrhages at a childbirth three months before. He ordered isolation and sedatives, giving a favorable prognosis. The cases demonstrate anew the importance of predisposing factors in such cases.

Acute Traumatic Dilatation of the Heart.—In the case described by Sarachaga the man of 40 fell from a height but was caught on a projection which he hit with his chest and hung suspended until rescued. The fright, contusion of the chest and the muscular effort of clinging to the support were followed by acute dilatation of the heart, with edema. Under digitalis the symptoms gradually subsided and by the seventeenth day normal conditions had apparently been restored. There have been no further signs of disturbance during the three months since to date. This complete recovery and the fact that the symptoms did not appear until forty-eight hours after the accident exclude a valvular lesion. The prognosis in such cases depends on the muscular force of the heart rather than on the degree of dilatation.

Semana Medica, Buenos Aires

Nov. 21, 1918, **25**, No. 47

*Alkalinity of Blood. P. J. Pando.—p. 595.
*Foundlings and Other Child Wards of the State. S. M. Paez.—p. 601.
Suspensory for Orchi-Epididymitis. G. V. Moran.—p. 607.
*Sodium Hyposulphite in Respiratory Disease. A. Iarcho.—p. 611.
Plastic Motor Surgery. G. B. Arana.—p. 612.

Nov. 28, 1918, **25**, No. 48

Lectures Outside of Regular Courses. (La docencia libre.) R. A. Bullrich.—p. 619; G. A. Alfaro.—p. 632; R. A. Bullrich, No. 49, p. 659.
*Public Health Legislation in Peru. J. Penna.—p. 622.
The Antituberculosis League of Rosario. C. Alvarez.—p. 629.
The Uruguayan Antituberculosis League. E. R. Coni.—p. 638.
Intestinal Trichomonosis. E. Escomel.—p. 649.
Sexuality and Psychoneuroses. A. Austregésilo.—p. 653.

Dec. 5, 1918, **25**, No. 49

*Congenital Nephritis. J. Dutrey and V. Widakovich.—p. 661.
Nomenclature of Tuberculosis. S. De Madrid.—p. 664.
*Symphysiotomy versus Pubiotomy. T. A. Chamorro.—p. 666. Conc'n.
*Needle in Uterus. J. Diez.—p. 689.
*Leprosy. E. R. Coni.—p. 692.
Influenza Death Rate. E. R. Coni.—p. 694.
Atypical Tuberculosis. S. De Madrid.—p. 695.

Alkalinity of the Blood.—Pando remarks that the alkalinity of the blood cannot be determined in the same way as with the other fluids of the organism because its red color masks the reaction in the change of tint. He discusses the various causes that may interfere with the reliability of the findings with various tests, and declares that the acidity of the distilled water used in the tests may have considerable bearing on the findings. Another source of error is the loss of alkalinity depending on the time the blood has been outside of the blood vessels, from the biochemical action of its diastases and enzymes. Distilled water always gives an acid reaction on account of the carbon dioxid present. The test method he describes in detail is based on the acidification of a given quantity of blood by means of a 200 normal solution of sulphuric acid in presence of neutral sodium citrate, estimating, by means of a 200 normal solution of sodium hydroxid, the excess of sulphuric acid which has not combined with the alkaline principles of the blood. He says that with a minute amount of blood this method is simple and easy although indirect.

Protection of Foundlings.—Paez gives a historical sketch of what has been done in the Argentine Republic to care for abandoned children. The first institution, the Casa de Expósitos, dates from 1779.

Sodium Hyposulphite in Respiratory Diseases.—Iarcho deplores the neglect of this drug which has been so highly commended by Huchard, Ayerza and others. He has used it himself on a large scale in the public hospital, and has been much impressed by its beneficial influence on cough and expectoration, and the improvement in the purulent sputum. He says that it is notoxic and has no by-effects except possibly a slightly laxative action in the sensitive. The usual dose is 2.5 or 3 gm. a day, or 1 gm. for children of 5. He gives it in hot, slightly sweetened, water. It is incompatible with acids, salts and especially the salts of lead, silver, mercury and iodin.

Sanitary Legislation in Peru.—Penna's article is the introduction to a book on the medicosocial bases of sanitary legislation in Peru, by Dr. Carlos Enrique Paz Soldan of Lima, director of the monthly, *Reforma Medica*.

Congenital Nephritis.—Dutrey and Widakovich report the case of a prematurely born child of a woman who had 1.50 gm. per thousand albumin in the urine. Delivery was spontaneous, but the placenta weighed 1,950 gm. while the child weighed only 1,700 gm. There was general edema of the cord and membranes and of the entire fetus. Lesions were found in the kidneys of the child indicating chronic nephritis, and this nephritis in the child evidently had cooperated in the production of the edema. There was nothing to suggest syphilis in mother or child. They know of only two other cases on record of congenital fetal nephritis, theirs being the third case to be published in accessible literature. In Sitzenfrei's case, the nephritis in the fetus was evidently acute.

Symphysiotomy Versus Pubiotomy.—Chamorro here concludes his long monograph on this subject, based on extensive

clinical experience. He analyzes the advantages and disadvantages of each of these operations, his verdict being all in favor of symphysiotomy, for numerous reasons. The mishaps and their gravity are much less than with pubiotomy, and the puerperium is comparatively normal. There can be no clinical and surgical parallel between them, he reiterates. Symphysiotomy, done subcutaneously, may almost be called physiologic, as he shows by the case histories in full of thirty-nine cases in which one of these operations was performed at Buenos Aires, including eight personal cases. Considerable bibliography is appended, the list containing titles of forty-five articles or works on the subject that have been published in Argentina by thirty-one different writers.

Fibromatous Uterus with Foreign Body.—Diez removed the uterus on account of fibromatous changes and found an ordinary sewing needle embedded in the cervical tissue. The irritation from this may have been responsible for the extreme degree of fibromatous degeneration.

Prophylaxis of Leprosy.—Coni protests decidedly against the plan of segregating lepers on remote islands. It is far better, he argues, to have an accessible colony for lepers where they can see their friends and relatives occasionally. Agricultural colonies give them occupation and make their lot as bearable as possible. He appeals to the legislature to provide for compulsory declaration of leprosy. No census has ever been taken of the lepers in Argentina.

Siglo Medico, Madrid

Oct. 26, 1918, **65**, No. 3385.

Surgery of Urinary Apparatus. R. Mollá.—p. 873.
*Historical Fees. J. M. A. Sanz.—p. 876.
Treatment of Epilepsy. A. Sanchez-Herrero.—p. 879.

Dec. 7, 1918, **65**, No. 3391

*Present Status of the Problem of Epidemic Cerebrospinal Meningitis. G. Marañón and A. Ruiz y Falco.—p. 993. Commenced in No. 3388.—p. 933.
*Treatment of Felon. Sicilia.—p. 1000.

Dec. 14, 1918, **65**, No. 3392

*Crasiology. C. Calleja.—p. 1013. Concluded in No. 3396, p. 22.

Historical Fees.—Sanz reviews the history of large fees, beginning with that paid by the king Antiochus, 300 B. C., to the physician Erasistratus of Alexandria. He is said to have received a sum equal to 600,000 pesetas, about $120,000. Dubois received $20,000 and the title of baron for attending the wife of Napoleon. The latter declared that he did not believe in physicians, but he averaged over $40,000 a year paid to doctors, dentists, and chiropodists. Sanz describes the public health officials in the towns of the Romans, saying that they were officially organized and passed on the credentials of those wishing to practice medicine. A fine of 2,000 *drachmas* was imposed on those practicing without the official approval of these official *archiaters*. They were exempt from military duty and taxes,and had certain other privileges. The Visigoths continued some of these regulations and added others, one decreeing that if the physician's patient died, the physician could not collect any fee. Coming down to modern times, Sanz remarks that an American trust magnate or a Mexican cotton king now pays for medical attendance twenty times more than the kings and popes of the past, even though the Roman physician Crina left an inheritance of 10 millions *sestertii*.

Present Status of Epidemic Meningitis.—Marañon concludes his study of meningitis by urging isolation and treatment of germ carriers. They must be sought in those surrounding the patient, but it is impossible to isolate them all, which would be the ideal. At least they can be warned to keep away from other persons as much as possible, and especially from children, and be taught to disinfect the throat repeatedly. In schools and barracks, the carriers must be scrupulously isolated. Preventive vaccination is said to have given good results in a few cases, and this is certainly promising for the future. Serotherapy must be with large doses. In one of his cases he injected 120 c.c. of the antiserum in the course of five days. In very severe cases he has good results from rinsing out the spinal cavity. At first 50 or 60 c.c. of spinal fluid is withdrawn and then the same amount of saline is injected through the same needle. The foot of the bed is then raised for two or three minutes, and again 50 or 60 c.c. of fluid is withdrawn, reinjecting an equal amount of saline. After thus rinsing out the spinal cavity, the antimeningococcus serum is injected and left. Rosenthal recently advised using two needles, a large and a small, for continuous lavage. In most cases marked improvement followed. When the ventricle has to be punctured, the meningitis having become walled off, this will be found easier in children. The mortality was 78 per cent. in the thirty-three cases he has found on record in recent literature. He reviews the entire field of treatment, and warns to be on the alert to ward off bed sores. After the first two or three days the patient can begin to eat milk, eggs, purées and so forth, even although the temperature may still be high.

Treatment of Felon.—Sicilia emphasizes that a felon is by no means a harmless thing, and urges extremely vigorous measures. He has attained the best results with tincture of iodin, cauterizing occasionally with zinc chlorid or copper sulphate, removing the dead bone if necessary. In one case a cure was realized only after the entire arsenal of measures had been applied, including staphylococcus vaccine.

Constitutional Predisposition to Disease.—Calleja uses the term crasiology to denote the congenital predisposition to disease. The organic constitution, the true crasis, is always morbid, and is different in each individual. No one has an absolutely perfect constitution. He thinks there is a vast field here for research on ways and means to improve the constitution of individuals. Physicians should be trained as "crasiologists," as he thinks that in the near future this will be a principal part of medicine instead of the subordinate place it occupies at present.

Nederlandsch Tijdschrift v. Geneesk., Amsterdam

Jan. 5, 1918, **1**, No. 1

Sporotrichosis in Netherlands Indies. K. B. M. Ten Brink.—p. 5.
*Spectroscopy in Determination of Occult Blood. I. Snapper.—p. 10.
Familial European Chyluria. J. Koopman.—p. 19.
Case of Morphin Poisoning. W. H. A. van Os.—p. 23.

July 6, 1918, **2**, No. 1

*Psychopathology and Crime. E. J. Swaep.—p. 9.
Ultimate Outcome of Fracture of the Leg. W. F. Wassink.—p. 19.
*Typhoid Bacilli Carriers. H. Aldershoff.—p. 37.

Occult Blood in the Spectroscope.—The first issue of this exchange for 1918 and the number for July 6 were received Feb. 13, 1919. Snapper expatiates on the importance of spectroscopy for determining the presence of occult blood in the stools. He declares that this is so important that no one should hesitate to acquire a spectroscope and perfect himself in its use. The color reactions are not dependable, peroxidases in the absence of blood being liable to give positive reactions, while the blood may be absorbed in the intestinal canal and none reach the anus or be eliminated in a porphyrin combination. With the spectroscope we have two means of determining the presence of blood, the spectrum for hemochromogen and the spectrum for porphyrin. When the blood is eliminated in the form of a combination of porphyrin, it does not respond to any of the color tests for occult blood. All the hemoglobin may be transformed into this hematoporphyrin combination, even when there may be considerable blood in the digestive tract.

Psychopathology and Crime.—Swaep's article was the presidential address opening the sixty-ninth annual meeting of the Netherlands Medical Association. He expatiated on the importance of the connection between psychopathology and crime and its relation to the future of the race, saying that progress in hygiene and in medicine has led to survival of many mentally and physically substandard individuals, and their offspring present many problems, financial and others. "But no backward step in this line is even thinkable. The love for our neighbor is the physicians' best possession, recognizing no frontiers or nationalities.. But although we hold this love for our neighbor sacred, yet we are also justified in listening to the dictates of common sense, if only this voice of our reason rings out true and clear, if only our ideas are pondered well and a hundred times tested. Nowa-

days the problem of hereditary transmission is at the zenith of interest. Everywhere we meet it, in the study of character, of mental and organic disease, in degeneracy, etc. We know more now than ever before of hybridization, of correlations, of dominant and recessive characteristics. Love is no longer a matter that concerns two persons alone; instead of a *Sache von Zweien* it has become a *Sache von Dreien*. To a certain extent we are bound to what we brought into the world with us. All this knowledge has brought the idea of purifying the race. But it is still too early to think of actively interfering. We have no right, either, to apply here the laws discovered elsewhere. Many persons living honest lives may have a latent tendency to criminality as a recessive characteristic. In order to stamp out criminality completely, these persons would have to be included in the repressive measures. In seeking to prevent hereditary transmission of insanity, the only effectual means would be to prevent reproduction of the family strain not only by the inmates of the asylums but by the relatives that come to visit them. Our duty now is to study these questions. How these strains rise and decline, how the lives of the genius, the average man, the martyr and the criminal differ, and how these are linked together by the bonds of heredity—all this should be recorded over long genealogic periods, in biographies and statistics, before the human hand should interfere. To a large extent this task rests on the medical profession. What finer prospect can be imagined than from the partial records of the many to build up on broad, scientifically accurate foundations a grand work which will point the way to improve the welfare and the character of the race." He added that a society for such research was founded a few years ago in Holland, the Nederlandsch Volk, and Heijmans and Wiersma, among others, have made valuable contributions in this line.

Typhoid Bacilli Carriers.—Aldershoff is public health inspector at Utrecht, and he concludes his dissertation on the subject of healthy typhoid bacilli carriers by emphasizing that the problem is merely one of cleanliness. It is impossible to isolate them all, and a scrupulously careful and cleanly carrier is no danger to his or her ordinary environment. The essential point in prophylaxis is detection of all cases of typhoid in the earliest possible phase and removal to a hospital. Notification of even the suspicious cases should be compulsory, without waiting for certainty. All the vast literature on typhoid carriers and the conclusions, when it has been sought to apply them in practice, have resolved themselves into merely the old laws of hygiene.

Hospitalstidende, Copenhagen

Dec. 4, 1918, **61**, No. 49

*Types of Tubercle Bacilli found in Tuberculous Skin Lesions, especially in Lupus. C. W. Anderson.—p. 1689. Commenced No. 44, p. 1521. Present Status of Deep Roentgen Treatment. H. J. Panner.—p. 1699.

Types of Tubercle Bacilli Found in Lupus and Other Tuberculous Skin Lesions.—Andersen's experimental research demonstrated in 3 of 30 cases of lupus that the bovine tubercle bacillus seemed to be responsible for the lesions. In 9 the bacilli were of the typical human type; in the others they seemed more or less atypical human tubercle bacilli, except in 4 cases in which he was unable to cultivate tubercle bacilli from the lesions. His research was done on 72 guinea-pigs, 141 rabbits, 7 calves and 4 fowls. Inoculation of the guinea-pigs elicited a positive response in all but 3. These 3 responded to the lupus bacilli as to the bacilli of fowl tuberculosis, but fowls inoculated with the same bacilli did not sicken.

Ugeskrift for Læger, Copenhagen

Dec. 26, 1918, **80**, No. 52

*Hydatidiform Mole with Ovarian Cysts. J. Nordentoft.—p. 2139. Herman Boerhaave, 1668-1918. J. W. S. Johnsson.—p. 2144.

Jan. 2, 1919, **81**, No. 1

*Habitual Constipation, VIII. T. E. H. Thaysen.—p. 4.

The Ovaries with Hydatidiform Mole.—In Nordentoft's case the woman of 35 had borne three children. There was an interval of three years since the last pregnancy, but recently there had been no menstruation and a tendency to nausea and vomiting had convinced the woman that she was three months' pregnant. Then came severe hemorrhage by the vagina and the uterus seemed to be of a size corresponding to a six months' pregnancy. A large mole was found and the uterus curetted. A tumor rapidly developed thereafter on each ovary. On the left ovary the cystic tumor was 15 cm. long, with a base 8 cm. broad; on the right ovary the tumor was smaller, but both were of cystic structure, filled with a fluid, gelatinous mass similar to the contents of the mole. The uterus itself also showed suspicious patches so that supravaginal amputation seemed advisable. The patient has been in good health during the months since to date. The ovarian tumors had probably existed at the time of the operation on the mole, but their rapid growth, that could be followed with the eye and palpation, within less than a week, was most striking. In six other cases of mole given operative treatment at the same hospital, the women were from 20 to 46 years old; four of the women had borne several children, one only one child, and one was pregnant for the first time. Four have borne healthy children since; one woman died several months later of a pulmonary lesion which may have been metastasis from the mole, and one succumbed to sepsis consecutive to the operation.

Habitual Constipation.—Thaysen discusses the diagnosis, etiology and treatment of chronic habitual constipation, this being his eighth communication on the clinical and roentgenologic aspects of constipation. He defines it as primary, habitual; secondary, symptomatic; and the constipation which is a complication of other lesions. He affirms that the large majority of cases of chronic constipation developing between the ages of 26 (women) or 31 (men) and the age of 50 are of the symptomatic type. This symptomatic form differs materially from the type of habitual constipation, both in the stools and in its clinical course. Habitual—primary—constipation is due to abnormal weakness or abnormal activity of the nervous motor apparatus of the lower bowel; it usually begins before the age of 26 in women and 31 in men. It runs a chronic course with occasional remissions and marked tendency to recurrence, and a hereditary tendency is often manifest. This latter tendency may be indirect, from congenital abnormal conditions in the ductless glands or a congenital overcomplete digestion. Cooperating elements may be lack of hygiene or nervous, medicinal or mechanical factors. He analyzes each of these possible factors in turn and the means to combat them. Ptosis is extremely rarely to be incriminated for constipation in men, but habitual constipation developing between 15 and 20 is as common in males as in females, namely, in 29 and 31 per cent. This, he thinks, disproves the importance of ptosis as a factor. Fully 38 per cent. of all cases of habitual constipation in women begin within the fifteenth year. Excluding from the remaining 62 per cent. the 37 per cent. which are traceable to what he calls rectum constipation, only 25 per cent. are left for which ptosis can possibly be incriminated. These percentages are from his own clinical experience. Of the twenty-three women who formed the 25 per cent. thus left over, only four presented gastroptosis, that is, less than 5 per cent. of the total material. Hence the assumption of kinking of the bowel from gastroptosis as the cause of chronic constipation can apply only to less than 5 per cent. All his experience seems to discredit kinking at the flexure as much of a factor in the genesis of chronic constipation. When there is actual stenosis from a kink or other cause, ileus results in time, while with habitual constipation this occurs extremely seldom, only when there is obstruction from a fecal stone or spasmodic contraction. It is impossible to explain with a mechanical cause for the constipation the frequent remissions which occur in the course of habitual constipation, even of many years' standing. It is a well known fact that the latter may disappear for a time during a trip to the country, or other traveling or under emotional stress. In concluding this instalment of his work, Thaysen remarks that in examining twenty healthy women and twenty healthy men, he found the transverse colon 10 cm. or more below the umbilicus in 20 per cent. of the men and in 50 per cent. of the women, although the position of the stomach was normal in all. He also found that the position of the colon may vary by 8 cm. from day to day.